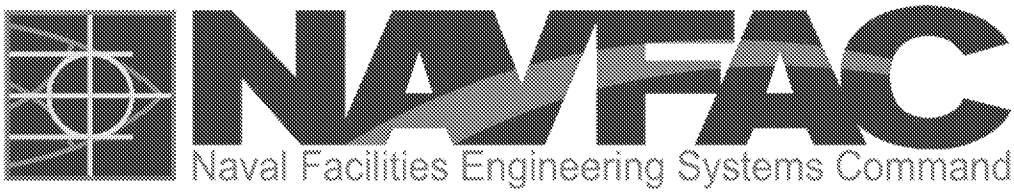

BRAC Program Management Office East
Philadelphia, Pennsylvania

Draft Final
Preliminary Assessment Documenting Potential Sources of Per- and Polyfluoroalkyl Substances

Transferred Parcels

Former Naval Station/Naval Shipyard Philadelphia
Philadelphia, Pennsylvania

April 2022

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DRAFT FINAL
PRELIMINARY ASSESSMENT DOCUMENTING POTENTIAL SOURCES OF PER- AND POLYFLUOROALKYL SUBSTANCES

TRANSFERRED PARCELS

FORMER NAVAL STATION/NAVAL SHIPYARD PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Department of the Navy
Base Realignment and Closure Program Management Office East
4911 S. Broad Street
Philadelphia, Pennsylvania 19112

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CONTRACT NUMBER N6247016D9008
CONTRACT TASK ORDER WE14

APRIL 2022

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Acronyms and Abbreviations

AFFF	aqueous film-forming foam
ANPRM	Advanced notice of proposed rulemaking
AOC	Area of Concern
AOI	Area of Interest
ASD	Assistant Secretary of Defense
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CNO	Chief of Naval Operations
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
CTO	Contract Task Order
DASN (E)	Deputy Assistant Secretary of the Navy (Energy, Installations, and Environment)
DoD	Department of Defense
DON	Department of the Navy
EC	emerging chemical
EDR	Environmental Data Resources, Inc.
FFTU	Fire Fighting Training Unit
HI	Hazard index
IC	institutional control
IRIS	Integrated Risk Information System
IRP	Installation Restoration Program

MCL	Maximum Contaminant Level
MIL SPEC	military specification
µg/L	micrograms per liter
NAVSTA	Naval Station
NIRIS	Naval Installation Restoration Information Solution
OMB	Office of Management and Budget
PA	Preliminary Assessment
PADEP	Pennsylvania Department of Environmental Protection
PaGWIS	Pennsylvania Groundwater Information System
PASDA	Pennsylvania Spatial Data Access
PES	Philadelphia Energy Solutions
PFAS	Per- and Polyfluoroalkyl Substances
PFBS	Perfluorobutane sulfonate
PFHpA	Perfluoroheptanoic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PNB	Philadelphia Naval Base
PNYA	Philadelphia Naval Yard Annex
ppt	parts per trillion
PSL	project screening level
PWS	public water system
RCRA	Resource Conservation and Recovery Act
RfD	reference dose

RIR	Remedial Investigation Report
ROD	Record of Decision
RSL	Regional Screening Level
SDS	Safety Data Sheet
SI	Site Inspection
SNUR	Significant New Use Rule
SWMU	Solid Waste Management Unit
TRI	Toxics Release Inventory
TSCA	Toxic Substances Control Act
UCMR 3	Third Unregulated Contaminant Monitoring Rule
UCMR 4	Fourth Unregulated Contaminant Monitoring Rule
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
WWTP	Waste Water Treatment Plant

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Executive Summary

This preliminary assessment (PA) report documenting potential sources of per- and polyfluoroalkyl substances (PFAS) at the former Naval Station (NAVSTA) /Naval Shipyard (NSY) Philadelphia Transferred Parcels has been prepared by Tetra Tech for the Navy Base Realignment and Closure (BRAC) Program Management Office East as part of Contract Task Order WE14 under Comprehensive Long-Term Environmental Action Navy Contract Number N6247016D9008. The objectives of this PFAS PA of former NAVSTA/NSY Philadelphia Transferred Parcels are to:

- Identify all areas where a known or suspected PFAS release to the environment occurred.
- Eliminate from further consideration those areas where there is no evidence of a PFAS release or suspected release, and document the rationale for their elimination from further PFAS evaluation.
- Identify areas requiring further PFAS investigation.
- Identify receptors and migration pathways (both on and off the facility).
- Determine whether an expedited response effort is warranted because of current complete exposure pathways (e.g., on-base or off-base drinking water source within 1 mile downgradient of potential source areas).
- Set priorities for a base-wide Site Inspection.

NAVSTA/NSY Philadelphia officially closed in 1996 as a result of the 1991 BRAC process. Portions of the former facility have been transferred to civilian uses as the Philadelphia Navy Yard. The Navy also retained some areas (mostly as part of the Ship Systems Engineering Station). This PA focused on former Navy operations within the property parcels that were transferred from the Navy to the City of Philadelphia through the BRAC process. The Philadelphia Industrial Development Corporation (PIDC) currently manages the Philadelphia Navy Yard (also known as the Philadelphia Navy Business Center) for the city.

The PFAS PA consisted primarily of conducting these three activities: document searches and base records review, public database searches, and interviews with former NAVSTA/NSY Philadelphia staff (such as long-time employees with extensive historical knowledge of the base, and the Environmental Director) who were likely to have information on historical activities that may have been associated with PFAS use or releases. Information on potential PFAS or aqueous film-forming foam (AFFF)

storage, use, or release at former NAVSTA/NSY Philadelphia was collected by performing key word searches of historical documents available from Naval Installation Restoration Information Solution; reviewing site-specific history and utility maps; and conducting web-based searches to collect general information on PFAS use and regulations. In addition, various public on-line database resources were searched to collect pertinent UCMR 3 data; information useful for characterizing receptors; well, spring and groundwater flow data; and other pertinent historical information. For complete due diligence in identification of potential historical PFAS sites, the initial search included documents related to all BRAC environmental sites at the base. The BRAC sites with no PFAS-related operations, use or materials disposal were eliminated from further PFAS evaluation.

The review of historical records and the personnel interviews conducted during the PFAS PA identified 91 sites at the former NAVSTA/NSY Philadelphia transferred parcels where PFAS-related operations, use or storage potentially occurred; and 81 of those sites were recommended for no further PFAS evaluation. The following 10 building/areas were recommended for further PFAS evaluation because of known or suspected PFAS-related operations, use, or storage: Building 46 (Former Officer's Club); Building 41 (Electroplating Shop Spill Area); Chrome-Waste Accumulation Area Outside Building 16; and IR Site 13 (Fire Fighting Training Unit) and its six associated areas (Fire Fighting School [A], Fire Fighting School [B], Fire Fighting School [C], Fire Fighting School Oil/Water Separator, Fire Fighting School Underground Storage Tank [UST] Removal Area #1, and Fire Fighting UST Removal Area #2).

1.0 Introduction

This Preliminary Assessment (PA) Report of potential sources of per- and polyfluoroalkyl substances (PFAS) at the former Naval Station (NAVSTA)/Naval Shipyard (NSY) Philadelphia Transferred Parcels is prepared by Tetra Tech for the Navy Base Realignment and Closure (BRAC) Program Management Office East as part of Contract Task Order (CTO) WE14 under Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N6247016D9008.

1.1 PA Objectives

This installation-specific PA for PFAS is part of a Navy-wide installations assessment of potential historical sources of PFAS use. The objectives of this PFAS PA of former NAVSTA/NSY Philadelphia Transferred Parcels are to:

- Identify and catalog all potential or actual PFAS sources where a known or suspected PFAS release to the environment occurred.
- Eliminate from further consideration those areas where there is no evidence of a PFAS release or suspected release, and document the rationale for their elimination from further PFAS evaluation.
- Identify areas requiring further PFAS investigation.
- Identify receptors and migration pathways (both on and off facility).
- Determine whether an expedited response effort is warranted because of current complete exposure pathways (e.g., on-base or off-base drinking water source within 1 mile downgradient of potential source areas).
- Set priorities for a site-specific PFAS Site Inspection (SI).

To accomplish these objectives, the following activities were completed:

- Reviewing existing information to identify and characterize potential PFAS releases.
- Reviewing existing information to identify potential off-base receptors within 1 mile of the transferred parcels. Note: this is less extensive than the study area defined in United States Environmental Protection Agency (USEPA) PA Guidance (USEPA, 2005), but will be expanded, if necessary, in later project phases if complete pathways beyond 1 mile are identified.)

- Interviewing relevant site personnel to validate and verify data collected during the data review, and to provide supplemental information.
- Identifying if there is a need for initiation of an expedited response drinking water investigation in accordance with Navy policy (Navy, 2016b).

1.2 PFAS Background

PFAS have been identified by the United States Department of Defense (DoD) and USEPA as "emerging chemicals of environmental concern"[1]. PFAS are of environmental concern because of their persistence in the environment and in organisms, their migration potential in aqueous systems (e.g., groundwater), their historically widespread use in commercial products, and their possible health effects at low levels of exposure. PFAS are anthropogenic compounds characterized by carbon chains of varying lengths with multiple strong carbon-fluorine bonds.

1.2.1 General Uses of PFAS

The chemical properties of PFAS make them useful for many commercial products because they are heat resistant and can repel oil, grease, and water. PFAS have been manufactured for use in a wide variety of products including fire-fighting foam, non-stick cookware, fiber and fabric stain protection, food packaging, and personal care products. The pervasive use of PFAS in commercial and industrial products has led to the discovery of PFAS in soil, air, surface water, sediment, and groundwater worldwide.

1.2.2 Key PFAS Sources at Naval Installations

PFAS have been used in a variety of military applications, including as a component of aqueous film-forming foam (AFFF), which was routinely used at fire-fighting training and equipment test areas. AFFFs are commercial surfactant solutions used for several decades by the military, civilian airports, and other facilities to extinguish hydrocarbon fires (ITRC, 2018). In addition, current and historical AFFF storage and transfer areas are of concern for potential releases of PFAS to the environment. Therefore, identification of areas where AFFF was released to the environment, either as repeated

[1] Per Department of Defense Instructions 4715.18: (DoD, 2019a): "As identified by the Assistant Secretary of Defense (Energy, Installations & Environment), an emerging chemical of environmental concern is a chemical that:
-Has a reasonably possible pathway to enter the environment;
-Presents a potential unacceptable human health or environmental risk; and
-Does not have regulatory standards based on peer-reviewed science, or the regulatory standards are evolving due to new science, detection capabilities, or pathways."

small releases or as a significant one-time release, is key to determining potential PFAS sources to environmental media.

AFFF used in firefighting, fire-fighting training, and fire suppression systems are considered to have the greatest potential for release of PFAS to the environment in terms of mass and concentration at Department of the Navy (DON) installations. Other potential sources of PFAS to the environment include operations wastes (e.g., from electroplating), historical on-site land disposal areas/landfills of PFAS-containing materials, wastewater treatment sludges and effluents, and releases of PFAS-containing materials. General areas of interest for this PFAS PA include those where AFFF may have been applied, released, or stored. These include current and former fire-training areas, equipment test and cleanout areas, buildings with fire-fighting infrastructure (e.g., hangars, AFFF storage/handling areas, pump houses, etc.), unplanned release areas (e.g., crash sites), and fire suppression systems located at fuel storage areas. For these operational and waste areas, it is important to develop a conceptual site model (CSM) that considers the following to determine if a reasonable basis exists for PFAS use, and if there is potential for the PFAS to be released into the environment:

- Type of operations
- Timeline of operational activity
- Material/product development and usage
- Material storage and management practices
- Quantities of material used
- Historical information/data from similar operations in the assessment

1.2.2.1 AFFF in Fire-fighting Training and Fire Suppression

AFFF containing PFAS was developed in the 1960s for use on Class B fires (i.e., fires in flammable liquids or vapors), and was put into routine use by the early 1970s. In November 1969, a military specification (MIL SPEC) was issued that described characteristics that AFFF needed to demonstrate to be used by the military, including a requirement for formulations containing PFAS. Based on this, most AFFF used at military installations after the 1970s likely included some combination of PFAS.

Typically, AFFF concentrate was proportionally mixed into water lines using in-line eductors or other proportioning devices to create the necessary foam solution ranging from 3 to 6 percent of the concentrate.

At the transferred parcels, fire-fighting training that used foam historically occurred at IR Site 13. This Site is evaluated in Section 4.1.4.

1.2.2.2 Electroplating

Electroplating, specifically hard chromium plating, is an industrial activity where PFAS-containing mist suppressants may have been used. Electroplating consists of creating an electrolytic cell that enables a thin layer of metal to be deposited onto an electrically conductive metal surface. PFAS were sometimes used during the chromium electroplating process as a surfactant in chromic acid baths. As a surfactant, PFAS lowered the surface tension (adhesion) of materials by creating a thin foamy layer on the surface of the chrome bath for mist suppression. This mist suppressant reduced the formation of airborne chromium aerosols during the plating process, which are known to be carcinogenic and allergenic. Areas where non-chromium electroplating operations were carried out would not be expected to have used PFAS-containing mist suppressants.

Chromium electroplating historically occurred at the transferred parcels at Building 41. This building is evaluated in Section 4.1.2.

1.2.2.3 Landfill Operations, Waste Disposal Areas, and Wastewater Treatment Plants

Historically, landfills received wastes generated from military installations, including waste streams from operational areas (machine shops, electroplating operations, etc.), housing areas, and waste from wastewater treatment plants (WWTPs) and/or homeported ships. These waste streams may contain industrial and/or consumer products that were either manufactured with PFAS or contain PFAS constituents which may leach out of the landfill. Additionally, waste material biosolids and sludge from WWTPs can contain PFAS. Based on questionnaires, interviews and review of Site documents, no landfills that may have received PFAS-containing material were identified at the transferred parcels.

1.2.2.4 Other Potential Sources

Because of the widespread use of PFAS, there may be activities other than the ones mentioned above where PFAS were used. PFAS have been included in some anti-fouling and stain-resistant paint formulations. It is possible that in significant amounts, these could be sources of PFAS to the environment. Based on questionnaires, interviews and review of Site documents, no antifouling paint was documented to have been utilized at the transferred parcels.

The area surrounding former NAVSTA/NSY Philadelphia was investigated via an Environmental Data Resources, Inc. (EDR) review completed on August 25, 2020. The review was focused on potential off-site potential source areas that were identified within a 1-mile radius of former NAVSTA/NSY Philadelphia. The surrounding area is highly developed with largely commercial and industrial sites. The sites listed in the EDR were assessed via a keyword search, where keywords associated with known PFAS use were used to identify potential offsite sources (list of keywords can be found in Table 1-1). The following sections list the results of the PFAS assessment of potential offsite sources.

Former Philadelphia Energy Solutions Girard Point Site

The former Philadelphia Energy Solutions (PES) site encompasses two results from the EDR search: the former Chevron Refinery and the former Sunoco Philadelphia Refinery and Explosion (Figure 1-1). PES site history includes Gulf Oil building a terminal at Girard Point in 1920, with Gulf Oil then being bought by Chevron in 1982 and the Girard Point Refinery becoming the Chevron USA Philadelphia Refinery. Sunoco purchased Point Breeze in 1988, Girard Point in 1994, and merged the two refineries into one complex in 1995. In 2012, Sunoco turned the refinery over to PES (City of Philadelphia, 2019).

Former Chevron Refinery

The former Chevron Refinery was located on 30th St and Penrose Avenue in Philadelphia, PA (Figure 1-1). The facility occupied 373 acres along the Schuylkill River, approximately 1 mile above the confluence of the Schuylkill River with the Delaware River. Although Chevron USA was the current facility owner and operator, operations at this facility began in the early 1920s as a Gulf Oil Corporation terminal. Gulf Oil commenced refinery operations in the late 1920s. The Chevron facility is divided by the Penrose Avenue Bridge into two areas: the terminal area and the process area. The terminal area is south of the Penrose Avenue Bridge and is the oldest part of the refinery, dating back to the 1920s. The loading areas for petrochemicals, gasoline and lube oils, a package and grease plant, a marine loading dock, and attendant tankage and piping are located in this area. The process area is located north of the Penrose Avenue Bridge and contains the primary refining units, petrochemical process plans, wastewater treatment unit, incinerator, office buildings, and laboratory. Most of this area was built after the 1940s (A.T. Kearney, Inc., 1989).

In 1975, a fire at the facility destroyed 90 percent of the records, and facility personnel have tried to reconstruct site history. The original cause of the fire was the overfilling of Tank 231. While no crude oil escaped from the tank as a result of being overfilled, large quantities of hydrocarbon vapors were trapped above the surface of the tank's crude oil.

As the quantity of crude oil increased, these hydrocarbon vapors were forced out of the tank's vents and into the area of the No. 4 Boiler House where the initial flash occurred. Reportedly, foam from Philadelphia's two foam pumpers (Foam Engines 160 and 133) and also the Gulf Refinery's foam pumper was applied directly to the burning tanks and piping in an effort to extinguish the fire (Ebrary, 2014-2021).

Former Sunoco Philadelphia Refinery and Explosion

The former Sunoco Philadelphia Refinery, now known as the Philadelphia Energy Solutions Refining and Marketing LLC Complex, consists of approximately 1400 acres located on both the eastern and western banks of the Schuylkill River in Philadelphia (Figure 1-1). The complex has a long history of petroleum transportation, storage and processing. The oldest portion of the complex started petroleum-related activities in the 1860s when Atlantic Petroleum Company (Atlantic) established an oil distribution center. In the 1900s, crude oil processing began, and full-scale gasoline production started during World War II. Recent operations at the complex were limited to the production of fuels and basic petrochemicals. On June 21, 2019, a major process loss of containment caused a fire and subsequent explosions at the PES Refinery. The U.S. Chemical Safety and Hazard Investigation Board reported that an old, degraded piece of metal pipe that had not been tested for corrosion led to the June fire and explosions at the PES Refinery. The pipe fitting gave way on June 21, releasing propane containing more than 3,200 pounds of hydrofluoric acid (HF) that escaped into the atmosphere (Philadelphia Refinery Legacy Remediation, 2021).

Although investigations have occurred at the complex at least back to the 1980s and before, additional environmental investigation activities occurred at the complex in the early 1990s as part of Resource Conservation and Recovery Act (RCRA) Corrective Action permits. In an effort to streamline the investigative process, the complex was divided into Areas of Interest (AOIs) in a 2003 Consent Order and Agreement between Sunoco and the Pennsylvania Department of Environmental Protection (PADEP). AOIs were defined based on geographic location and/or historic and current operations, among other factors. These AOIs are:

- AOI 1 – Belmont Terminal, #1 Tank Farm, and #2 Tank Farm
- AOI 2 – Point Breeze Fuels Processing Area
- AOI 3 – Impoundment Area
- AOI 4 – #4 Tank Farm Area
- AOI 5 – Girard Point South Tank Field Area
- AOI 6 – Girard Point Chemicals Processing Area
- AOI 7 – Girard Point Fuels Processing Area
- AOI 8 – North Yard

- AOI 9 – Schuylkill River Tank Farm
- AOI 10 – West Yard
- AOI 11 – Lower Aquifer Beneath the Complex

Remedial Investigation Reports (RIRs) have been submitted for each of the AOI's at the complex, with the most recent RIR having been submitted in December 2017 (Philadelphia Refinery Legacy Remediation, 2021). Following the June 2019 explosion and resulting fire, the facility was closed and is now owned by Hilco Redevelopment Partners who are overseeing cleanup and redevelopment.

Philadelphia Fire Department Engine 49 (Fire Site 062)

The EDR listed Fire Site 062 at 2600 S 13th St, Philadelphia, PA 19148, which is the same location as Philadelphia Fire Department Engine 49 (Figure 1-1). The site was listed in the EDR due to a gasoline spill in a UST in 2015. The tank has a 1000-gallon storage capacity, and soil was reportedly the only impacted media.

1st District Police Station and Fire Department Engine 60 (Fire Site 065)

The EDR listed Fire Site 065 at 2301 S 24th St, Philadelphia, PA 19104, which is the same location as the 1st District Police Station and Fire Department Engine 60 (Figure 1-1). The site was listed in the EDR due to a gasoline spill in a UST in 2005. The tank has a 1000-gallon storage capacity, and soil was reportedly the only impacted media. This site is also listed as "Police Fire Complex" within the EDR.

A complete list of sites found on the EDR radius search can be found in Appendix C.

1.2.3 PFAS in the Environment

The strong electronegative force of the carbon-fluorine bonds in PFAS compounds requires a large amount of energy to break, which makes PFAS extremely resistant to biodegradation, photo-oxidation, direct photolysis, and hydrolysis. In addition to their environmental persistence, PFAS are readily soluble in aqueous solutions and therefore have the potential for migration to groundwater from soil and with groundwater flow to off-site locations. Because of their persistence and mobility, PFAS released to the environment present a unique set of challenges and concerns.

1.2.4 Potential Health Effects

Additional research is needed to more clearly understand the potential health effects that may be caused by exposure to PFAS. To date there is limited information on only a few PFAS, and there are no Tier 1 toxicity values [i.e., peer-reviewed toxicity criteria

from the USEPA Integrated Risk Information System (IRIS)] for any of the PFAS. Tier 1 toxicity values are the preferred source for toxicity factors in Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) assessments.

The Department of Defense (DoD) Memorandum "Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program" (DoD, 2019c) provides direction to use toxicity criteria provided in the Regional Screening Level (RSL) Calculator for Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), and Perfluorobutane sulfonate (PFBS) for calculating screening levels for these PFAS and for conducting risk assessments under CERCLA. These PFAS-specific toxicity criteria are briefly discussed below.

USEPA Toxicity Criteria for PFOA:

The USEPA Office of Water developed a reference dose (RfD) for PFOA (0.00002 mg/kg-day), which is based on a developmental toxicity study using mice. The critical effects included reduced ossification in parts of the hands and feet and accelerated puberty in male pups following exposure during gestation and lactation (USEPA, 2016a). The USEPA Office of Water also determined that PFOA should be classified as "suggestive evidence of carcinogenic potential" and estimated an oral cancer slope factor (0.07 per mg/kg-day) based on tumor development in rat testes.

USEPA Toxicity Criteria for PFOS:

The USEPA Office of Water estimated a RfD for PFOS (0.00002 mg/kg-day) based on a developmental toxicity study in rats; the critical effect was decreased pup body weight following exposure during gestation and lactation (USEPA, 2016b).

PFOA and PFOS are known to be transmitted to the fetus in umbilical cord blood and to the newborn in breast milk (USEPA, 2016b). Because the developing fetus and newborn seem particularly sensitive to PFOA- and PFOS-induced toxicity, the RfDs based on developmental effects are also considered by USEPA to be protective against adverse effects in adults.

USEPA Toxicity Criteria for PFBS:

The USEPA's Office of Research and Development released "Human Health Toxicity Values for Perfluorobutane Sulfonic Acid (CASRN 375-73-5) and Related Compound Potassium Perfluorobutane Sulfonate (CASRN 29420-49-3)", in April 2021 (USEPA, 2021a). This toxicity assessment provides chronic and subchronic oral RfDs (0.0009 mg/kg-day and 0.0003 mg/kg-day) for PFBS that are considered Tier 2 noncarcinogenic toxicity values for use in CERCLA investigations. The PFBS oral RfDs are based on thyroid effects (decreased thyroid hormone levels). Due to a lack of

information in the current literature, toxicity values for inhalation exposure and cancer endpoints could not be estimated for PFBS (USEPA, 2021a).

1.3 Regulatory Background of PFAS

The sections below summarize the regulatory background and history of PFAS.

1.3.1 PFOA Stewardship Program

In 2006, USEPA initiated the 2010/2015 PFOA Stewardship Program in which eight manufacturing companies in the United States committed to reduce facility emissions and product contents of PFOA and related chemicals by 95 percent on a global basis no later than 2010; and to work toward eliminating emissions and product content of these chemicals by 2015. All companies have met the program goals, most by stopping the manufacture and import of long-chained PFAS, and then transitioning to alternative chemicals. On January 21, 2015, USEPA proposed a Significant New Use Rule under the Toxic Substances Control Act (TSCA) to require manufacturers (including importers) of PFOA- and PFOA-related chemicals to notify USEPA at least 90 days before starting or resuming new uses of these chemicals in any process.

1.3.2 Unregulated Contaminant Monitoring Rule

USEPA issued the Third Unregulated Contaminant Monitoring Rule (UCMR 3)[2] in May 2012. Between 2013 and 2015, the UCMR 3 required monitoring for 30 substances at all large public water systems (PWSs) serving more than 10,000 people, and at 800 representative PWSs serving 10,000 or fewer people. Six PFAS were included in the UCMR 3 contaminant list. Of these six PFAS, USEPA issued health advisory levels for two: PFOA and PFOS. The UCMR 3 results found these two chemicals were present in less than 1 percent of the nearly 5,000 public water systems that were sampled.

In December 2016, the USEPA issued the Fourth Unregulated Contaminant Monitoring Rule (UCMR 4). UCMR 4 requires all large PWSs serving more than 10,000 people, and 800 representative PWSs serving 10,000 or fewer people to sample for 30 chemicals between 2018 and 2020. There are no PFAS included on the UCMR 4 list of chemicals that require sampling and analysis.

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[2] The 1996 Safe Drinking Water Act amendments require that once every 5 years USEPA issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems.

USEPA is currently proposing development of a fifth UCMR (UCMR 5). A proposal for the rule was developed in 2020, and the final rule is expected to be released in late 2021. Several PFAS have been proposed for inclusion in the UCMR5 as a key component of USEPA's 2019 PFAS Action Plan (USEPA, 2019a).

1.3.3 USEPA Lifetime Health Advisories

In May 2016, the USEPA Office of Water issued a drinking water lifetime health advisory for PFOA and PFOS. Health advisories are not enforceable, regulatory levels; rather, they are levels that would provide Americans, including sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water. The lifetime health advisory is 70 parts per trillion (ppt) for PFOA and 70 ppt for PFOS. When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared to the 70 ppt health advisory level.

1.3.4 USEPA Action Plan

In February 2019, the USEPA issued an action plan outlining the steps the agency is taking to take to address PFAS and to protect public health (USEPA, 2019a). The action plan identifies USEPA-led short-term actions, longer-term research, and potential regulatory approaches designed to reduce the risks associated with PFAS in the environment. The action plan notes that USEPA plans to propose a national drinking water regulatory determination for PFOA and PFOS, and to include PFAS analysis in the next UCMR monitoring cycle. Other steps include further research into improving analytical methods, understanding remediation options, and obtaining more information about the potential toxicity of a broader set of PFAS, along with numerous additional actions.

Additional USEPA actions since the release of its PFAS Action Plan include sending the Office of Management and Budget (OMB) a proposed significant new use rule (SNUR) on long-chain PFAS (September 25, 2019) (USEPA, 2019b); and sending OMB a regulatory determination for PFOA and PFOS in drinking water (December 3, 2019) (USEPA, 2019c). USEPA also published an advanced notice of proposed rulemaking (ANPRM) to add certain PFAS to the Toxics Release Inventory (TRI).

1.3.5 USEPA Guidance, 20 December 2019

In December 2019, the USEPA issued Interim Recommendations for Addressing PFOA- and PFOS-containing Groundwater (USEPA, 2019d) under federal cleanup programs. The guidance recommends using a screening level of 40 ppt (or 0.04 ng/L) to

determine if PFOA and/or PFOS is present at a site that may warrant further attention. The guidance also recommends using the USEPA PFOA and PFOS Lifetime Drinking Water Health Advisory level of 70 ppt as the preliminary remediation goal for PFAS-containing groundwater that is a current or potential source of drinking water, where no state or tribal Maximum Contaminant Level maximum contaminant level (MCL) or other applicable or relevant and appropriate requirements are available or sufficiently protective.

1.3.6 State-Specific Action Levels

At this time, Pennsylvania has not implemented action levels for any PFAS.

1.4 Navy Policy

The following section details the Navy's policies regarding PFAS.

1.4.1 Department of the Navy, Office of the Assistant Secretary (Environment) [DASN (E)] Policy Memo, October 21, 2014

As a result of Navy releases impacting PWSs tested under the UCMR 3, the Deputy DASN (E) issued a policy in October 2014 (Navy, 2014) requiring on-base drinking water sampling for PFOA and PFOS at bases where groundwater was used as drinking water and PFAS could have been historically released nearby. Under the policy, all installations not previously tested under UCMR 3 which produced drinking water from on-installation sources and had an identified or suspected PFAS release within approximately 1-mile upgradient of the drinking water source were required to sample their finished drinking water by December 2015. Within both the Navy retained and transferred parcels of the former NAVSTA/NSY Philadelphia no action was required based on human health impacts because potable water is supplied from public sources and no active on-property drinking water wells exist.

1.4.2 Chief of Naval Operations (CNO) Policy Memo, September 14, 2015

A September 14, 2015 policy memorandum largely echoed the requirements documented in the October 2014 Chief of Naval Operations (CNO) policy memorandum. However, this memorandum specified that if levels of PFOS and/or PFOA in drinking water exceeded the current USEPA health advisories (i.e., the 2009 provisional short-term health advisories), then alternative drinking water must be supplied until the PFOA and/or PFOS levels were reduced to below the USEPA health advisories. No action was required at the former NAVSTA/NSY Philadelphia because

Navy retained and transferred parcels have potable water supplied from public sources and no active on-property drinking water wells exist (Navy, 2015).

1.4.3 DASN (E) Policy Memo, June 14, 2016

A June 14, 2016 policy memorandum expanded required drinking water sampling for PFOA and PFOS at all DON installations where such sampling was not previously completed under the USEPA UCMR 3 or the DON October 2014 policy. This memorandum also specified that for instances where drinking water for an installation was purchased from a public water system that wasn't tested under UCMR 3, that the installation was required to sample the finished drinking water to comply with this policy. Additionally, this policy required reporting of all PFOA and/or PFOS drinking water results to the DASN (E) office (Navy, 2016a). Philadelphia Water Department supplies drinking water to the former NAVSTA/NSY Philadelphia parcels. Philadelphia Water Department sampled their drinking water supply wells under the UCMR 3 program, and PFAS were not measured above the detection limit (USEPA, 2017).

1.4.4 DASN (E) Policy Memo, June 17, 2016

A June 17, 2016 policy memorandum defined the DON's intention to remove, dispose of, and replace legacy AFFF that contains PFOS and/or PFOA after environmentally suitable substitutes are identified and certified to meet military specification requirements (Navy, 2016b). This policy directed the following actions to be taken until suitable replacements were certified:

- Immediately cease the uncontrolled environmental release of AFFF for shoreside installations, with the exception of emergency responses. Where such non-emergency operations are deemed necessary, complete containment, capture, and proper disposal mechanisms and procedures must first be in place to the maximum extent practicable, prior to conducting such actions, to ensure that no AFFF is released to the environment.
- Update and implement Navy and Marine Corps firefighting system requirements, as needed, to ensure fire and emergency service vehicles and equipment at DON installations and facilities are tested and certified in a manner that does not allow the release of AFFF to the environment.
- By the end of Fiscal Year 2017, remove and dispose of uninstalled PFOS-containing AFFF in drums and cans from local stored supplies for shore installations and ships to prevent future environmental releases.

1.4.5 DASN (E) Policy Memo, June 20, 2016

A June 20, 2016 policy memorandum required Navy to identify and prioritize sites for investigation if drinking water resources, on- or off-installation, were thought to be vulnerable to PFAS impacts from past Navy/Marine Corps PFAS releases. Sites with drinking water sources within 1 mile downgradient of known or potential releases of PFAS were assigned the highest priority. This policy directed the sampling of off-base drinking water at these high priority (Priority 1) sites within Fiscal Year 2017 (Navy, 2016c).

The primary mechanism to identify potential PFAS release sites/areas of concern (AOCs) was a review of Base Realignment and Closure (BRAC) records. To ensure that all potential PFAS release mechanisms were identified, installations were directed to review facility-wide information to identify areas that were not already part of the BRAC program.

There are currently no known private drinking water wells within 1-mile downgradient of former NAVSTA/NSY Philadelphia (see Section 2.1.5).

1.5 Department of Defense (DoD) Policy

The sections below summarize the DoD PFAS policies.

1.5.1 Assistant Secretary of Defense (ASD) Policy Memo, June 10, 2016

The June 10, 2016 DoD policy memorandum from the ASD specified that decisions regarding drinking water should be based on the lifetime health advisories issued by the USEPA Office of Water in May 2016, rather than the outdated provisional short-term health advisories issued in 2009 (DoD, 2016). Directives on sampling of military installation supply water were presented in this memo, and these have been superseded by the ASD Policy Memo dated March 2, 2020 (DoD, 2020b).

1.5.2 Secretary of Defense Memo, July 23, 2019

The July 23, 2019 memorandum established a PFAS task force to ensure a coordinated, aggressive, and holistic approach to DoD-wide efforts to proactively address PFAS. The goals of the task force are mitigating and eliminating the current use of PFAS-containing AFFF products, understanding the impacts of PFAS on human health, and fulfilling cleanup related to historical PFAS use (DoD, 2019b). The task force is coordinating and collaborating with other federal agencies to achieve these goals.

1.5.3 ASD Guidance Memo, October 15, 2019

An October 15, 2019, DoD Memorandum, "Investigating Per- and Polyfluoroalkyl Substances within the Department of Defense Cleanup Program," (DoD, 2019b) provides direction to use toxicity criteria from the USEPA Regional Screening Level (RSL) Calculator (April 6, 2018) to calculate RSLs for PFOA, PFOS and PFBS in groundwater and soil. The calculated RSLs and the associated toxicity criteria can be used to determine if there is a need for a remedial investigation (RI) and to conduct risk assessments under CERCLA. A Hazard Index (HI) of 0.1 is applied for risk screening when multiple PFAS compounds are encountered at a site. Therefore, the DoD recommended groundwater RSLs calculated using an HI of 0.1 for PFOA and PFOS are 0.040 micrograms per liter (µg/L) (deemed equivalent to ppb for PFAS in groundwater) (DoD, 2019c). In April 2021, USEPA issued an updated toxicity assessment for PFBS (USEPA, 2021a) and the resulting default RSL for tap water for a residential exposure scenario was updated in May 2021 to 600 ng/L (USEPA, 2021b). Per the 2019 DoD guidance, the revised RSL for PFBS in groundwater is 600 ng/L or 0.60 µg/L using the most recent USEPA toxicity criteria.

1.5.4 ASD Guidance Memorandum, October 15, 2019

An additional October 15, 2019 memorandum established a reporting requirement for funding associated with investigating and cleaning up PFAS (DoD, 2019d).

1.5.5 ASD Memorandum, October 23, 2019

The October 23, 2019 memorandum revised quarterly progress reporting requirements for installations with known or suspected PFAS releases (DoD, 2019e).

1.5.6 ASD Guidance Memorandum, November 22, 2019

The November 22, 2019 memorandum established requirements for installation commanders to conduct community engagement with respect to PFAS issues, report on their progress in doing so, and to provide feedback on community questions and concerns (DoD, 2019f).

1.5.7 ASD Guidance Memorandum, November 22, 2019

An additional November 22, 2019 memorandum established a consistent methodology for analysis of PFAS in media other than drinking water, and requires DoD Components to use analytical methods meeting the DoD/Department of Energy Quality Systems Manual for Environmental Laboratories, Appendix B, Table B-15 (DoD, 2019g).

1.5.8 ASD Memorandum, January 13, 2020

The January 13, 2020 memorandum established annual reporting requirements for AFFF usage or spills (not associated with use) at all DoD installations (DoD, 2020a).

1.5.9 ASD Policy Memorandum, March 2, 2020

The March 2, 2020 memorandum identifies requirements for PFAS drinking water sampling on DoD installations where DoD is the drinking water purveyor. The requirements include initial and routine monitoring, actions necessary if results exceed USEPA lifetime health advisories, laboratory analysis and record keeping requirements, and notification of results (DoD, 2020b).

1.5.10 ASD Policy Memorandum, July 23, 2020

This July 23, 2020 memorandum identifies requirements for PFAS drinking water sampling on DoD installations where DoD is not the drinking water purveyor (DoD, 2020c). The requirements include coordination with the non-DoD drinking water purveyor, actions necessary if results exceed the lifetime health advisory, and notification of results.

1.5.11 ASD Policy Memorandum, September 18, 2020

This September 18, 2020 memorandum identifies the requirement for DoD to seek to enter into agreements with municipalities or municipal drinking water utilities adjacent to military installations to jointly share drinking water monitoring data for PFAS and other emerging chemicals of environmental concern (DoD, 2020d).

1.5.12 ASD Policy Memorandum, 18 September 2020

This memorandum prohibits testing and training with fluorinated AFFF on all DoD installations (DoD, 2020e). Five installations and the pier side testing of ship's AFFF systems are the only stated exemptions listed in this policy.

1.6 Report Organization

The remainder of the PFAS PA Report for the former NAVSTA/NSY Philadelphia Transferred Parcels consists of the following sections: Section 2 describes the facility; Section 3 presents the assessment methodology; Section 4 presents the PA findings and recommendations; and Section 5 is the list of references.

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2.0 Facility Description

This section provides a brief history and the setting of former NAVSTA/NSY Philadelphia, including a discussion of the geologic and hydrogeologic settings. The local hydrogeology information is applied in the PFAS PA process to identify potential migration pathways to drinking water receptors for transferred parcels where environmental release of PFAS may have occurred.

2.1 Physical Setting and History

On December 12, 1868, the City of Philadelphia granted title of League Island to the Navy. The League Island that the Navy acquired in the mid-1800s was mapped in 1899 as the U.S. Navy Yard. Over time, the island was enlarged through placement of fill material. The filling operations connected the island to the mainland and expanded into the Delaware and Schuylkill Rivers. Fill material, predominantly dredge spoils, consisted of sand and gravel, cinders, brick, concrete, wood, and rubbish. The fill is believed to be a minimum of 5 feet (ft) thick throughout much of the Naval Base (EA, 1998). Located in South Philadelphia at the confluence of the Delaware and Schuylkill Rivers, former NAVSTA/NSY Philadelphia was one of the Navy's largest industrial facilities (Figure 2-1). The Philadelphia Naval Complex was a major military shipyard with 4 miles of waterfront on the Delaware River. Former NAVSTA/NSY Philadelphia operated as a Naval base for more than 120 years, employing more than 40,000 people during its peak production period during World War II (Trevet, 2016). The facility encompassed 300 acres on 9 parcels, including 25,000 linear feet of berthing space; 5 drydocks; 34 fixed, floating, and track cranes; and facilities that housed 23 fully equipped production shops totaling more than 7 million square feet of space. The base officially closed in 1996 as a result of the 1991 BRAC process. Portions of the complex have been transferred to civilian uses as the Philadelphia Navy Yard, and the Navy has retained some space (mostly as part of the Ship Systems Engineering Station) (Trevet, 2016).

2.1.1 Land Use

Former NAVSTA/NSY Philadelphia is situated in a highly industrialized and developed area. Much of the former Navy property has been transferred to the City of Philadelphia. The majority of transferred property use now includes office space, industrial and manufacturing processes including shipbuilding, and research and development. One parcel, the Capehart Housing Area was transferred as a residential use site (Figure 2-1). As outlined in the August 1998 Decision Document for the Philadelphia

Naval Base (PNB) (Navy, 1998), institutional controls (ICs) were selected by the Navy in agreement with USEPA and PADEP for implementation at the property covered by the Decision Document, including the transferred parcels which are the subject of this PA. The implemented ICs are as follows:

- Groundwater withdrawn from wells situated in the PNB or Capehart Housing Area shall not be used or made available for human consumption.
- PNB shall not be used or developed for any permanent residential uses.
- Any construction or development of an outdoor childcare playground, within PNB, will include placement of 2 feet of clean fill material, or other cover as approved by PADEP, between the underlying soil and the surface of the childcare playground prior to commencement of any use of the outdoor area as a playground.

The ICs for the transferred parcels are implemented by a deed notice and deed covenant that requires disclosure of the site conditions and references the Decision Document requirements and restrictions.

2.1.2 Geologic Setting

The geologic formations underlying former NAVSTA/NSY Philadelphia consist of pre-Cretaceous, Cretaceous, and Quaternary-aged deposits. The pre-Cretaceous rocks serve as the basement rock for the overlying Cretaceous and Quaternary sediments. These pre-Cretaceous units are a complex group of crystalline rocks, consisting of metamorphosed sedimentary and igneous rocks (Envirodyne Engineers, 1983).

The upper surface of the crystalline rock has been extensively weathered, leaving a layer of residual clay. This clay layer is a few feet thick in the vicinity of former NAVSTA/NSY Philadelphia. Underlying the clay is the well foliated, dense, mica schist. The mica schist is characterized by joints and fractures as a result of weathering and deformation.

The depth to the top of the bedrock surface varies from 100 feet in the northwestern portion of the former facility to 240 feet in the central portion of the base. The bedrock surface dips to the southeast and is channeled by the ancestral Schuylkill River. One of these erosional channels or troughs, the League Island Trough, runs through former NAVSTA/NSY Philadelphia. Another erosional trough, the Greenwich Point Trough, occurs just east of former NAVSTA/NSY Philadelphia. These ancient valleys are important because they contain thick accumulations of highly permeable, coarse grained Cretaceous sediments.

Overlying the pre-Cretaceous crystalline rocks are non-marine sedimentary deposits of the Raritan Formation which represent three cycles of sedimentation. Each cycle begins with a series of coarse sands and closes with silts and clays. The members of the Raritan Formation, in ascending order, are the Farrington sand, the lower clay, the Sayreville sand, the middle clay, the Old Bridge sand, and the upper clay. The thickness of these members is influenced by the League Island Trough.

The Farrington sand member consists predominantly of coarse sand and fine gravel which grades upward into medium to fine grained sands containing a few beds of white clay. The Farrington sand member reaches a maximum thickness of around 90 feet at former NAVSTA/NSY Philadelphia.

Overlying the Farrington sand member is the lower clay member, which consists of clay interspersed with thin lenses of fine grained sand. The lower clay member reaches a maximum thickness of 61 feet near the mouth of the League Island Trough. The lower clay member serves as a confining bed for the underlying Farrington sand member.

The Sayreville sand member overlies the lower clay member. The Sayreville sand consists of very fine to coarse grained sand beds that are interspersed with a few beds of clay. The thickness of the Sayreville member varies throughout former NAVSTA/NSY Philadelphia from around 10 to 25 feet.

The middle clay member overlies the Sayreville sand, serving as a confining bed. The middle clay is the most extensive clay member of the Raritan formation. The middle clay is composed of clay with occasional thin streaks or lenses of fine grained sand in its middle and upper parts. The thickness of the middle clay varies considerably throughout the former NAVSTA/NSY Philadelphia area, reaching a maximum of 75 feet.

The Old Bridge sand member overlies the middle clay. This member consists of medium to coarse grained sand with a minor amount of fine to very fine sand. At the base of the member, beds of gravel commonly occur. The thickness of the Old Bridge sand exceeds 30 feet along the axis of the League Island Trough, but is absent throughout much of former base.

The upper clay is the uppermost member of the Raritan Formation, and where present, it overlies the Old Bridge sand member. The upper clay consists of sandy and carbonaceous clays. The typical thickness of the upper clay member is less than 20 feet and is absent in parts of former NAVSTA/NSY Philadelphia.

Overlying the Cretaceous sediments are Pleistocene glacial outwash deposits of sand, gravel, and clay which vary from 10 to 50 feet in thickness. These Pleistocene deposits are composed of sand and gravel with pebbles and boulders of sandstone, siltstone,

chert, quartzite, and mica schist. These deposits were originally much thicker in the area of former NAVSTA/NSY Philadelphia but have undergone extensive erosion. The Pleistocene sediments are covered by recent deposits consisting of highly organic silt and fine sand.

The soils at the former base have been extensively altered by construction and filling operations, making the identification of specific soil types impractical. Extensive filling operations occurred throughout League Island, covering the original soils and tidal marsh substrata. This fill material, consisting of sand and gravel, rubbish, garbage, cinders, and other material, is in excess of 5 feet thick throughout much of the area.

2.1.3 Hydrogeologic Setting

The Delaware River makes up the southern border of the historical base boundary, with the Schuylkill River serving as the western border. There are no streams within the boundaries of former NAVSTA/NSY Philadelphia. League Island historically had extensive marsh areas, especially in the eastern portions of the site; however, filling activities conducted over many years eliminated the marshes.

All surface runoff from former NAVSTA/NSY Philadelphia/NSY flows either directly or indirectly (via storm drains) into the Schuylkill River or Delaware River, or into the Reserve Basin which is connected to the Schuylkill River. Runoff that enters the Schuylkill River is discharged into the Delaware River, which ultimately discharges into the Atlantic Ocean through Delaware Bay. The tidal fluctuations of the Delaware River estuary extend upstream past the former NAVSTA/NSY Philadelphia base as far as Trenton, New Jersey. This tidal influence greatly reduces the streamflow, which serves to increase the residence time of chemicals discharged into the river. However, net flow within the Delaware river is southwest to the Delaware bay.

As discussed in Section 2.1.2, the Raritan Formation represents three fining-upward cycles of sedimentation. Each of the cycles begins with a series of coarse sands and ends with silts and clays. The three sand members, in ascending order, are the Farrington, Sayreville, and Old Bridge. Each of these sand aquifers can provide significant quantities of groundwater; however, in South Philadelphia in general, and including the area of Former NAVSTA/NSY Philadelphia, the Farrington sand aquifer is by far the best source of groundwater. Prior to the 1960s, when the conversion to municipal water occurred, most of the wells on base and in the immediate South Philadelphia vicinity drew water from this sand member.

The general movement of the Pleistocene sand and gravel aquifer, which is under water table conditions, is largely controlled by the surface topography with groundwater

flowing toward surface water bodies. Therefore, the surficial groundwater movement is toward and discharges to either the Delaware River or Schuylkill River. The artesian aquifers of the Raritan formation also ultimately discharge into the Schuylkill and Delaware Rivers. The groundwater in the artesian system slowly moves upward through or around the confining clay beds and into the unconfined Pleistocene aquifer, from which it discharges into the Delaware River or Schuylkill River (Envirodyne Engineers, 1983).

2.1.4 Dredging activities

Navigation channels in the vicinity of former NAVSTA/NSY Philadelphia are routinely dredged to maintain adequate channel depth for ships and barges. Two recent dredging operations are detailed in this section.

2.1.4.1 Philadelphia Naval Reserve Basin Dredging

In 2016, the Philadelphia Naval Reserve Basin Dredging project was completed and consisted of maintenance dredging and unclassified excavation. Dredging was conducted by the Army Corps of Engineers Philadelphia District throughout the Reserve Basin and entrance channel of the Schuylkill River. The materials dredged during this project included sediment, wood, concrete, steel, miscellaneous materials and munitions, and unexploded ordnance. The dredging was completed to a mean lower low water depth of 30 feet. Dredged material was unloaded from scows and hydraulically offloaded to the Ft. Mifflin confined disposal facility (CDF) near the Philadelphia International Airport.

2.1.4.2 Delaware River Main Channel Deepening

Dredging occurred along the Delaware River from 2008 to February 2020 to deepen the navigation channel. This project was completed by the Army Corps of Engineers Philadelphia District and involved dredging within the federal navigation channel to deepen it to 45 feet along a 102.5-mile distance from the Delaware Bay.

The main channel dredging operation involved the removal of 16 million cubic yards of material. About 12 million cubic yards of that total was silt, clay, sand, and gravel from the Delaware River portion of the project that was placed at existing federal upland CDFs in New Jersey and Pennsylvania. The remaining 4 million cubic yards was dredged from the Delaware Bay which was used for the coastal storm risk management project (dune and beach nourishment) at Broadkill Beach, Delaware.

2.1.5 Groundwater Use

Neither the shallow nor deep groundwater are considered drinking water sources at former NAVSTA/NSY Philadelphia. A Base-wide Institutional Control prohibiting groundwater withdrawal for human consumption was enacted by the 1998 Decision Document (Navy, 1998). Drinking water in the Philadelphia area including retained and transferred parcels of the former base is supplied by the Philadelphia Water Department (PWSID: PA1510001) (PASDA, 2020). Wells installed in the Raritan Formation originally supplied water to the former Philadelphia Naval Base. These deep wells were abandoned in the 1960s with the conversion to municipal water supplies (EA, 1999a). Since converting to municipal water, all supply wells at former NAVSTA/NSY Philadelphia and most in the South Philadelphia area are no longer in use. Data collected from the Pennsylvania Department of Environmental Protection, Pennsylvania Water Science Center, and the New Jersey Department of Environmental Protection during well searches done around bases where potential PFAS impacts exists (Trevet, 2016) show that there are no domestic use water supply wells within 1 mile and 3 miles downgradient of former NAVSTA/NSY Philadelphia within the same groundwater divide.

3.0 Assessment Methodology

During the PFAS PA, the following activities were completed:

- Document Search and Base Records Review – included conducting a PFAS-related keyword search of NIRIS documents available for former NAVSTA/NSY Philadelphia; reviewing site-specific history and utility maps; and conducting web-based searches for general information on PFAS use and regulations.
- Public Database Searches – included reviewing data contained in the UCMR 3 database; having a 1-mile radius Environmental Data Resources, Inc. (EDR) report with GeoCheck[3] prepared; and reviewing water well and spring data from the Pennsylvania Groundwater Information System (PaGWIS).
- Interviews – conducted with current and former base personnel including fire department, public works, and environmental personnel.

A site reconnaissance was not conducted for the former NAVSTA/NSY Philadelphia transferred parcels because the parcels (and individual sites) have undergone significant alteration since their transfer to by the City of Philadelphia and use as the Philadelphia Navy Yard. Information obtained during site reconnaissance of the retained areas on November 1, 2018 was used to define the conceptual site model (e.g., migration pathways, potential receptors), since the retained areas are in immediate proximity to the transferred parcels.

Each of these activities is discussed in detail in this section.

3.1 NIRIS Document Search

The document search entailed a review of available Navy site files to identify where PFAS could have been used at the transferred parcels of former NAVSTA/NSY Philadelphia. The Navy documents reviewed included Decision Documents, Environmental Baseline Surveys, previous Preliminary Assessments, Master Plans, and Initial Assessment Studies found in the NIRIS database. Appendix A lists the primary documents reviewed from NIRIS. The key-word list used to search the documents is presented in Table 3-1 and was developed based on the PFAS background information

[3] A physical setting source addendum on the radius map report that includes geology of the general area, surface topography, soil data and soil map, and groundwater/well information.

provided in Section 1.0. For complete due diligence to identify potential historical PFAS sites, the expanded review of Navy files included all BRAC environmental sites. An additional 78 BRAC Sites were reviewed that had no key-words hits. These Sites are listed in Appendix B with the rationale for elimination of these areas from further PFAS evaluation.

3.2 Public Database Searches

The following sections detail the public database searches conducted for this PFAS PA.

3.2.1 USEPA UCMR 3 Data

The USEPA collected groundwater analytical results for PFAS as part of its UCMR 3 program. As documented in the USEPA Safe Drinking Water Act - UCMR 3 Data Summary for PWSs, all PWSs serving more than 10,000 people and 800 randomly selected PWSs serving less than 10,000 people were sampled for UCMR contaminants including six PFAS. The Philadelphia Water Department (PWSID: PA1510001), which serves former NAVSTA/NSY Philadelphia and surrounding areas within the City of Philadelphia was sampled as part of the UCMR 3 program. PFAS were analyzed at three locations within the Philadelphia Water Department (PWD) distribution system over four sampling rounds (May 8, 2013; August 5, 2013; November 5, 2013; and February 4, 2014). Source water for the PWD comes from either the Delaware (one intake location) or Schuylkill (two intake locations) Rivers. The six PFAS analyzed were PFOA, PFOS, PFBS, Perfluoroheptanoic acid (PFHpA), Perfluorononanoic acid (PFNA), and Perfluorohexanesulfonic acid (PFHxS). The USEPA UCMR 3 data showed that all six PFAS were reported below the detection limits for all four sampling events (USEPA, 2016c). The UCMR 3 PFAS testing data for the Philadelphia Water Department are provided in Table 3-2.

The UCMR 3 PFAS testing data for water suppliers in New Jersey listed one public water supply system (West Deptford Township [NJ0820001]) within 1 mile of former NAVSTA/NSY Philadelphia that was sampled as part of the UCMR 3 program. The West Deptford Township system was sampled at six locations over four sampling rounds (October 21, 2014; January 14, 2015; April 27, 2015; and July 14, 2015) for the six PFAS included in the UCMR 3 program. Only one sample had a detection of PFAS, and this was collected October 21, 2014 and had a detection of PFNA at 30 ppt. The UCMR 3 PFAS testing data for the West Deptford Township Water Department are provided in Table 3-2.

West Deptford Township obtains its water from several sources. The Township maintains and obtains water from six active wells that are drilled between 200 and

400 feet in the underground source of water called the Potomac-Raritan-Magothy Aquifer. West Deptford Township also purchases water from the New Jersey American Water Company, whose source of which is the Delaware River from intakes at a distance of located more than 5 miles upriver from the former NAVSTA/NSY Philadelphia.

Additional public water supplies within 1 mile of former NAVSTA/NSY Philadelphia are the National Park, New Jersey which reportedly obtains its water from the Potomac-Raritan-Magothy Aquifer and from purchasing water from the New Jersey American Water Company. A news article (Vineland Daily Journal, 2020) indicated that PFNA has been detected in the National Park, New Jersey water supply. The potential source of these chemicals was stated to be Solvey Chemical located in neighboring West Deptford Township, New Jersey. Both National Park and West Deptford Township are located in New Jersey and on the east side of the Delaware River.

3.2.2 EDR Results – Receptor Characterization

An EDR report was prepared on August 24, 2020 which contains information obtained from a search of available environmental records about nearby sites with potential hazardous chemical use or storage, and the locations of public supply wells within a 1-mile radius of the former NAVSTA/NSY Philadelphia facility. The EDR report is included as Appendix C. Of note, 89 wells were identified within a 1-mile radius of former NAVSTA/NSY Philadelphia property; however, all wells were identified as monitoring wells.

3.2.3 Pennsylvania Groundwater Information System

The PaGWIS, maintained by the Pennsylvania Department of Conservation and Natural Resources' Bureau of Topographic and Geologic Survey, contains water well and spring data for the State of Pennsylvania (PaGWIS, 2020). A data package from the PaGWIS was obtained which contains detailed information about water wells within a 1-mile radius of the transferred parcels at former NAVSTA/NSY Philadelphia. There were 345 total wells identified within 1-mile of the transferred parcels, and 31 of those were classified as withdrawal wells (Figure 3-1). Three of the withdrawal wells have "industrial" designated as their water use, 16 of the withdrawal wells have "other" listed as their designated water use; however, their well reports indicate the withdrawal water is not domestic, and 12 of the withdrawal wells have "monitoring" as their designated water use (Table 3-3).

Groundwater at former NAVSTA/NSY Philadelphia is expected to flow to the adjacent surface water features (Delaware and Schuylkill Rivers including the Naval Reserve

Basin); therefore, any potentially PFAS-impacted groundwater at the former base including the transferred parcels is not expected to flow in the direction of the 31 withdrawal wells listed by the PaGWIS.

3.2.4 Online Source Review

A number of online sources were reviewed that were pertinent to the facility history from a PFAS perspective. Incidents with fires on ships moored at former NAVSTA/NSY Philadelphia could potentially be a source of PFAS if AFFF was used in the response. As part of the interviews/questionnaires conducted for the retained and transferred PAs, a fire on the USS Kitty Hawk was mentioned; however, no fires were documented in any online sources while the ship was moored at former NAVSTA/NSY Philadelphia from July 1987 to August 1990. A March 1987 fire was documented on the USS Kitty Hawk while the ship was at sea. Three incidents were identified from internet sources and included the following:

- An explosion occurred on aircraft carrier USS Valley Forge on June 12, 1947. This incident predates Navy's use of AFFF.
- Aircraft carrier USS Saratoga suffered five minor fires from October 20 to 26, 1980 while undergoing a service life extension program. There was no documentation of which pier the ship was moored at the time of the incident, or if AFFF was used during response efforts was found during the PA research.
- A fire broke out in a storage area onboard the aircraft carrier USS Constellation on September 22, 1992. Firefighters from the shipyard responded to the incident. There was no documentation of which pier the ship was moored at the time of the incident, or if AFFF was used during response efforts was found during the PA research.

3.3 Interviews

Interviews were conducted to validate and verify information collected during the background information collection and review, and to identify other potential PFAS release information. Tetra Tech interviewed various base personnel who were most likely to have knowledge of historical PFAS use, storage, handling, disposal, and releases at the installation; and at the sites identified via the keyword searches. These interviews were conducted via in-person or over-the-phone conversations and questionnaires.

As described in Section 1.2.2, a primary historical source of PFAS from military operations is AFFF used in fire suppression systems, firefighting, and fire training. Disposal practices of wastewater treatment sludges that received PFAS-containing materials could also result in PFAS releases to the environment. Specific operations, such as electroplating, could have used PFAS in mist suppression systems. Therefore, specific questionnaires were prepared which contained questions pertaining to these types of activities or operations at former NAVSTA/NSY Philadelphia. When possible, the personnel who completed the questionnaires were also interviewed.

The interview forms asked for recall and knowledge about the former NAVSTA/NSY Philadelphia current or historical operations in which AFFF could have been used or stored (e.g., fire training areas, crash sites, buildings with fire suppression systems, and fire stations), or treated or disposed of (e.g., sanitary sewer sludge disposal). The people interviewed for the 2018 PFAS PA for the retained areas were these personnel with current or historical operational knowledge of AFFF: the environmental program director, emergency management officer, production branch head, supervisory fire captain, and a base employee who had been at former NAVSTA/NSY Philadelphia since 1973. The information collected during the retained areas PFAS PA was reviewed to look for information applicable to the transferred parcels. In addition, supplemental questions were developed that specifically pertained to potential PFAS areas at the transferred parcels. No personnel that completed questionnaires or participated in interviews had knowledge of fires on ships while moored at the facility (see Section 3.2.4 above). The questionnaires completed by former NAVSTA/NSY Philadelphia site personnel in 2018, and the supplemental transferred parcels questionnaires completed on September 25, and October 8, 2020 are provided in Appendix D.

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4.0 Findings and Recommendations

The PFAS PA assessment described in Section 3 identified potential PFAS sites at the transferred parcels of the former NAVSTA/NSY Philadelphia. These sites were evaluated and divided into two categories: recommended for further PFAS evaluation and recommended for no further PFAS evaluation. Further PFAS evaluation was recommended for sites where there was a confirmed use and release of PFAS-containing material (such as AFFF), or where PFAS-containing material had potentially been used, stored or released. Recommendations for no further PFAS evaluation were made based on historical site operations; and if there was no documented evidence of use, handling, storage, disposal, or release of PFAS-containing materials. The rationale for recommending further PFAS evaluation at 10 of the Buildings/Areas is discussed below and presented in Table 4-1. The Buildings/Areas recommended for further evaluation are shown on Figure 4-1.

4.1 Further PFAS Evaluation Recommended

The following sections detail each Building/Area being recommended for further PFAS assessment.

4.1.1 Outdoor Area at Building 46 – Former Officers' Club

The following sections detail the background information and findings/recommendations for the Outdoor Area at Building 46 (Former Officers' Club).

4.1.1.1 Description and Operational History

Building 46 (Former Officers' Club) was located on the east side of the main gate off South Broad Street and was demolished as part of the base closure. The former building location is now partly under a parking lot associated with a restaurant and partly under the putting green within Crescent Park (Figure 4-2). The former Officers' Club was historically used as a recreational gathering place. According to interviews with site personnel, foam was commonly released at this site for "pranks" during the 1980s. The frequency of these reported episodes and the volume of foam released are unknown. The type of foam released during these instances is also unknown; however, the site reconnaissance in 2018 and interviews with site personnel identified that Class B AFFF concentrate was stored on base at that time (Appendix D). Stored Class B AFFF included 5-gallon pails of Chemguard 3 percent AFFF C301 MS, Chemguard First Class FC, and 3M 3 percent AFFF. (Safety data sheets [SDSs] are provided in Appendix E.)

4.1.1.2 Basis for Recommending Further Assessment

Because AFFF concentrate was known to be stored on base, the reported discharge of the foam at the Former Officers' Club may have released PFAS to the environment. Therefore, the potential for historical PFAS releases exists; therefore, this area is recommended for further PFAS Assessment.

4.1.1.3 Potential Migration Pathways

The exact location of the reported foam releases at the site is unknown. Based on review of historical aerials, grass covered areas were located west and south of Building 46 and a paved (asphalt) parking area was located to the east. Depending upon the location(s) of any potential releases, surface soil may have been impacted and migration into subsurface soil and groundwater may have occurred. If discharged onto the paved portion of the former site, runoff most likely drained to the site stormwater sewer system. Following transfer of the parcel to the City of Philadelphia, any discharges of AFFF outside the building would likely have drained to the stormwater sewer, which discharges to the Reserve Basin in this area of former NAVSTA/NSY Philadelphia (see the base Drainage System Maps in Appendix F, Sheet 8). Migration into the subsurface soils and to groundwater may have occurred through cracks in the asphalt. Groundwater in this area of the former base is expected to flow southwest to the Reserve Basin. Crescent Park, a 3.5-acre recreational area covered by grass, was constructed directly adjacent and over a portion of the Former Officers' Club in 2005 – following transfer of the parcel to the City of Philadelphia, after the time period that foam was reported to have been released.

4.1.1.4 Potential Receptor Characterization

Former NAVSTA/NSY Philadelphia, including the Outdoor Area at the former Officers' Club, is underlain by the Pleistocene glacial outwash deposits and Raritan Formation (Pennsylvania Geological Survey, 1961). Grass covered areas existed to the west and south of Building 46 during the operational period of the Officer's Club. An asphalt covered parking area was also located immediately to the east of Building 46. Depending upon the location of any potential foam releases, AFFF may have impacted site surface and underlying subsurface soils and eventually site groundwater. If foam was potentially released to the grass covered areas, groundwater may have been impacted. If the potential foam releases occurred primarily within the paved parking areas, there would be no complete exposure pathway since the ground surfaces within the former club parking area would have low permeability, and infiltration from precipitation events is expected to be minimal. Building 46 was demolished and following Philadelphia Navy Yard development activities, the former building footprint is partly under a paved parking lot and partly under the putting green within Crescent

Park. While 31 withdrawal wells are located within a 1-mile buffer of the transferred parcels (Figure 3-1), groundwater is not expected to flow in the direction of these wells, which are not for domestic use. In addition, land use controls including deed notices and deed covenants are in place that prevent the use of groundwater for human consumption. Therefore, currently there are no potential receptors through domestic or public water well use. Currently, surface runoff around the Officers' Club would flow via storm water outfalls into the Reserve Basin. If any surface spills through the potential foam releases occurred at the former Officers' Club, surface water may have been impacted. Any surface water releases, however, would only have been occasional short-term events that would have dispersed because of the volume of water within and tidal nature of the Reserve Basin and Delaware and Schuylkill Rivers. Potential ecological receptors in the Reserve Basin and Delaware River include aquatic organisms such as fish and invertebrates, and wildlife such as piscivorous birds and mammals.

4.1.2 AOC-F - Building 41 (Electroplating Shop Spill Area)

The following sections detail the background information and findings/recommendations for AOC-F – Building 41 (Electroplating Shop Spill Area).

4.1.2.1 Description and Operational History

AOC-F – Building 41 (Electroplating Shop Spill Area) is located at the southern section of the base on the corner of South Broad Street and Admiral Peary Way, directly north of the Delaware River (Figure 4-3). AOC-F was an electroplating shop area located inside Building 41. The start date of the plating operations is not known; however, operations ended in 1994. It consisted of approximately 40 plating bath and rinse tanks used in the electroplating operations. The dip tanks rested on an elevated drain above a concrete floor. A 4-inch concrete dike was reportedly installed around a sanitary sewer system drain to prevent any release to the sewer. Samples of plating bath residues collected in August 1989 from the scrubber and containment sump in the area contained high concentrations of chromium and had a pH of less than 1 (EA, 1998).

4.1.2.2 Basis for Recommending Further Assessment

Because of the known chrome-plating operations that occurred at Building 41 and the common use of PFAS in mist suppressants during the plating process, this area is recommended for further PFAS assessment.

4.1.2.3 Potential Migration Pathways

Because routine chrome-plating operations occurred within Building 41, the possibility of a PFAS release existed. The floor drains located within Building 41 drained to the sanitary sewer. There are storm drains to the east and south within the asphalt area surrounding Building 41 (Appendix F, Sheet 10). These storm drains discharge into the Delaware River. Any discharges of PFAS in acid solutions outside the building would have flowed to these storm drains and to the Delaware River, or could have migrated through cracks in the asphalt into subsurface soils and then to groundwater. Any spills that occurred prior to surface paving surrounding the building could have readily infiltrated the soil and migrated to the groundwater. Any PFAS that reached the groundwater would have migrated in the direction of the groundwater flow. Groundwater in this area of former NAVSTA/NSY Philadelphia is expected to flow south to the Delaware River.

4.1.2.4 Potential Receptor Characterization

PFAS-related soil receptor concerns are limited due to the paved surfaces surrounding Building 41 (asphalt parking lot, concrete sidewalks). However, infiltration through cracks in the paved surfaces or any unpaved surfaces may have resulted in releases of PFAS to underlying soils and groundwater by the chrome-plating activities that historically occurred at Building 41. Review of historical aerials within the EDR report (Appendix C) indicate that the southern area of the base where Building 41 is located has been characterized by mostly low permeability surfaces since at least the early 1970s. Currently, there is no potential for groundwater being used as a drinking water source near this building given the prohibition of groundwater being withdrawn for human consumption per implemented institutional controls (Navy, 1998). While 31 withdrawal wells are located within a 1-mile buffer of the transferred parcels (Figure 3-1), groundwater is not expected to flow in the direction of these wells, which are not for domestic use. All surface runoff near Building 41 flows either directly or indirectly (via storm drains and storm water outfalls) to the Delaware River. If surface spills of chrome-plating solution occurred at Building 41, groundwater and surface water may have been impacted. Any surface water releases, however, would have only been occasional short-term events that would have dispersed because of the flow of the river. Potential ecological receptors in the Delaware River include aquatic organisms such as fish and invertebrates, and wildlife such as piscivorous birds and mammals.

4.1.3 Solid Waste Management Unit (SWMU) C-85 – Chrome-Plating Waste Accumulation Area Outside of Building 16

The following sections detail the background information and findings/recommendations for Solid Waste Management Unit (SWMU) C-85 – Chrome-Plating Waste Accumulation Area Outside of Building 16.

4.1.3.1 Description and Operational History

SWMU C-85 (Chrome-Plating Waste Accumulation Area Outside of Building 16) was an accumulation area located outside the southwest side of Building 16 (Figure 4-4). The unit was approximately 40 feet by 25 feet with an asphalt base. A fence surrounded three sides of the area, and the fourth side was bounded by the building wall. The unit was used to temporarily accumulate waste in 55-gallon drums from chrome plating baths located inside the building. The removed chrome plating baths were periodically replaced with new plating baths. The complete operational period is unknown; however, the accumulation area unit was no longer being used as of 1996.

4.1.3.2 Basis for Recommending Further Assessment

Since chrome-plating waste is known to have been stored at the Accumulation Area Outside of Building 16 and the time period that this occurred is unknown, this area is recommended for further PFAS assessment.

4.1.3.3 Potential Migration Pathways

Because chrome-plating waste was stored at the Waste Accumulation Area Outside of Building 16, chrome-plating waste spills possibly could have occurred, even though no spills were observed during the 1998 Environmental Baseline Survey (EBS) (EA, 1998). The accumulation area was located on a low permeability asphalt surface; however, a storm drain is located immediately to the south (Appendix F, Sheet 10). This storm drain discharges to the surface water of the Delaware River. A release of chrome-plating waste from the accumulation area would have flowed into the storm drain system eventually discharging into the Delaware River. Any spills that occurred prior to surface paving of the accumulation area would have readily infiltrated the soil and migrated to groundwater. Any spills that occurred after surface paving would have migrated overland to storm sewers or the pavement edges or migrated through cracks in the asphalt into the subsurface soils and then to groundwater. Any PFAS that reached the groundwater would have migrated in the direction of groundwater flow. Groundwater in this area of former NAVSTA/NSY Philadelphia is expected to flow to the Delaware River.

4.1.3.4 Potential Receptor Characterization

PFAS-related soil receptors around the Chrome-Plating Waste Accumulation Area Outside of Building 16 are limited because the site is paved, and paved surfaces surround the site. However, infiltration through any cracks in the paved surfaces may have resulted in releases of PFAS to underlying soils and groundwater from past activities at the site. Historical aerials within the EDR report (Appendix C) indicate that the southern area of the base where Building 16 is located has been characterized by mostly low permeability surfaces since at least the early 1970s. Currently, there is no potential for groundwater being used as a drinking water source near this building given the prohibition of groundwater being withdrawn for human consumption per the implemented institutional controls (Navy, 1998). While 31 withdrawal wells are located within a 1-mile buffer of the transferred parcels (Figure 3-1), groundwater is not expected to flow in the direction of these wells, which are not for domestic use. All surface runoff near the Chrome-Plating Waste Accumulation Area flows either directly or indirectly (via storm drains and storm water outfalls) to the Delaware River. If surface spills of chrome-plating waste occurred at the Building 16 Accumulation Area, surface water and groundwater may have been impacted. Any surface water releases, however, would have only been occasional short-term events that would have dispersed because of the flow of the river. Potential ecological receptors in the Delaware River include aquatic organisms such as fish and invertebrates, and wildlife such as piscivorous birds and mammals.

4.1.4 IR Site 13 - Fire Fighting Training Area & Associated Areas

The following sections detail the background information and findings/recommendations for IR Site 13 – Fire Fighting Training Area & Associated Areas.

4.1.4.1 Description and Operational History

The Former Fire Fighting Training Unit (FFTU), or IR Site 13, is located in the northwestern corner of the former NAVSTA/NSY Philadelphia facility (Figure 4-5). Firefighting training activities occurred regularly at the former FFTU from 1944 through September 1995. The training activities included distributing and igniting fuel (diesel, gasoline, and fuel oil), and then extinguishing the created fires. An underground fuel distribution system was in place at the site. Historical site figures identify a foam tank located at IR Site 13 (EA, 1999a). According to the Supervisory Fire Captain, nozzle calibrations and test sprays were also conducted at the FFTU (Appendix D). Since Class B AFFF is known to have been stored at the fire station and on one of the fire engines (which was investigated in the retained Navy properties PFAS PA), PFAS-

containing AFFF could have been released at IR Site 13, and could have been stored in the foam tank.

IR Site 13 Associated Areas

The six sites listed below are associated with IR Site 13 and are located within the site boundaries (Figure 4-5); therefore, any potential evidence of PFAS-containing soil or groundwater impacts will be assessed as part of further investigation activities already recommended for IR Site 13.

SWMU C-17 (Fire Fighting School A), SWMU C-18 (Fire Fighting School B), and SWMU C-19 (Fire Fighting School C): The 1999 BRAC Cleanup Plan lists wastes associated with Fire Fighting School A as spent oxygen breathing apparatus canisters, wastes associated with Fire Fighting School B as spent oxygen apparatus canisters and fire training wastes, and wastes associated with Fire Fighting School C as waste paint (EA, 1999b). The original features of the three Fire Fighting Schools are unknown because the site was demolished between 2007 and 2008 and then redeveloped for commercial and industrial use. The area previously occupied by the FFTU has been redeveloped into a business park that now includes several buildings used by various tenants for manufacturing, research and development, and other commercial activities (Tetra Tech, 2020).

SWMU 0-3 (Fire Fighting School Oil/Water Separator): Materials (such as AFFF) used to extinguish the training fires at the FFTU flowed into drains located near the simulation structures and then to oil-water separators. The collected water was discharged to the sanitary sewer, and waste oil was collected and subsequently managed by the Navy (EA, 1999a).

AOC-G (Fire Fighting School Underground Storage Tank [UST] Removal Area #1) and AOC-H (Fire Fighting School UST Removal Area #2): Historically, three USTs supplied diesel fuel, gasoline, and fuel oil to burn stations on the northern end of the fire field. However, as a result of failed tank-tightness tests, two of the three USTs (A3-002 [AOC-G] and A3-003 [AOC-H]) were removed in 1990. A third UST (A3-001) was removed from the northern end of the site in 1995 (EA, 1999a).

4.1.4.2 IR Site 13 PFAS Sampling Results

Tetra Tech conducted a PFAS groundwater sampling investigation at IR Site 13 in August 2019. PFOA, PFOS, PFBS, and other PFAS were detected in all groundwater samples collected at IR Site 13 during this investigation (Tetra Tech, 2020). Figure 4-6 shows the concentrations of PFOA, PFOS, and PFBS at each sampled location. The

data summary including the laboratory reported validated results are in Table G-1 of Appendix G.

Concentrations of PFBS ranged from 68 to 16,000 ng/L. At the time of sampling, the PFBS project screening level (PSL) of 40,000 ng/L was not exceeded at any of the groundwater monitoring well locations. In April 2021, USEPA issued an updated toxicity assessment for PFBS (USEPA, 2021a) and the resulting default RSL for tap water for a residential exposure scenario was updated in May 2021 to 600 ng/L (USEPA, 2021b). Per the 2019 DoD guidance, the revised RSL for PFBS in groundwater is 600 ng/L which was exceeded in one well, NSP0MW-07 (16,000 ng/L). Figure 4-6 shows the updated PFBS PSL .

Concentrations of PFOA ranged from 90 to 27,000 ng/L. All site groundwater concentrations exceeded the calculated PFOA PSL of 40 ng/L. The maximum concentration of PFOA was detected at monitoring well NSP-MW-07 (27,000 ng/L) and is two orders of magnitude greater than the next highest PFOA concentration (290 ng/L) detected at monitoring well NSP-MW-03 and NSP-MW-04.

Concentrations of PFOS ranged from 120 to 1,500 ng/L. All site groundwater concentrations exceeded the calculated PFOS PSL of 40 ng/L. The maximum concentration of PFOS was detected at monitoring well NSP-MW-03.

All screening values were based on a non-carcinogenic hazard quotient equal to 0.1 (HQ=0.1) per 2019 DoD guidance.

4.1.4.3 Basis for Recommending Further Assessment

Because of the known use of IR Site 13 for fire fighting training, and that PFAS were detected in the groundwater at IR Site 13 monitoring wells during the 2019 sampling event, further PFAS assessment is recommended. As outlined in the *Final Per- and Polyfluoroalkyl Substances Groundwater Preliminary Assessment/Site Inspection report for Site 13*, the scope of additional investigations at this site will be addressed in the resulting SI work plan (Tetra Tech, 2020).

4.1.4.4 Potential Migration Pathways

During routine fire fighting training at IR Site 13, PFAS-containing AFFF was potentially released. It seems likely that releases of AFFF did occur at IR Site 13 because PFAS were detected in groundwater samples collected in 2019 (Tetra Tech, 2020). However, major potential offsite sources of PFAS are also located upgradient of Site 13 including a former oil refinery complex where several large petroleum fires occurred in recent years (including 2019). Materials used during recent offsite petroleum fire fighting events may have contributed to PFAS concentrations detected in Site 13 groundwater

in 2019. Releases of AFFF onsite during fire fighting training activities would have flowed into drains located near the simulation structures and then to oil-water separators. The water was discharged to the sanitary sewer, and waste oil was collected and subsequently managed by the Navy. Any spills that would have potentially overflowed or bypassed the oil-water separators would have migrated overland to storm sewers lining the east border of the site (Appendix F, Sheet 1), or migrated through cracks in the asphalt into the subsurface soils and then to groundwater. Any PFAS that reached the groundwater would have migrated in the direction of groundwater flow. Two water-bearing zones have been identified at IR Site 13: a perched water layer in the low permeability sandy silt, and regional water in the lower sand lithology. Water in the upper water-bearing unit flows toward the southwest toward the nearby Schuylkill River (see Figure 4-5). Groundwater in the lower water bearing unit flows toward the southeast toward the Naval Reserve Basin and Delaware River.

4.1.4.5 Potential Receptor Characterization

The 2019 PFAS sampling event confirmed that the shallow groundwater at IR Site 13 has concentrations of PFAS above the calculated PSLs for PFOA and PFOS. PFAS in groundwater likely came from AFFF releases infiltrating through the site soil via precipitation events. There is no potential for groundwater being used as a drinking water source at IR Site 13 given the prohibition of groundwater being withdrawn for human consumption per the implemented institutional controls (Navy, 1998). While 31 withdrawal wells are located within a 1-mile buffer of the transferred parcels (Figure 3-1), groundwater is not expected to flow in the direction of these wells, which are not for domestic use. All surface runoff near IR Site 13 flows either directly or indirectly (via storm drains and storm water outfalls) to the Reserve Basin and eventually the Delaware River. If surface discharge of AFFF occurred at IR Site 13, surface water may have been impacted. Any surface water releases, however, would have only been occasional short-term events that would have dispersed because of the flow of the nearby Schuylkill River and Naval Reserve Basin. Potential ecological receptors in the Schuylkill and Delaware Rivers include aquatic organisms such as fish and invertebrates, and wildlife such as piscivorous birds and mammals.

4.2 No Further PFAS Evaluation Needed

There were sites that were identified as possible PFAS sites during the interview process or in documents that were reviewed as a result of the NIRIS key word search (Table 3-1); however, upon closer review, these sites were characterized as needing no

further PFAS evaluation. These sites and the rationale for exclusion from further PFAS evaluation are provided in Table 4-2. The no further evaluation sites are:

- 0-1 - Navy Fuel Farm Oil/Water Separator #1
- 0-10 - Bldg. 601 Testing Area Oil/Water Separator
- 0-11 - Defense Reutilization Marketing Office Oil/Water Separator
- 0-2 - Navy Fuel Farm Oil/Water Separator #2
- AOC-L - Bldg. 96 Spare Waste Tank
- C-10 - Bldg. 57 (C)
- C-13 - Bldg. 25 (B)
- C-14 - Bldg. 3
- C-16 (Girard Point Management Area) - Former Incinerator Staging Area
- C-25 - Bldg. 601
- C-28 - Bldg. 26
- C-3 - Bldg. 543 (C)
- C-35, M-15 - Wharf F Waste Accumulation Area
- C-46 - Bldg. 635
- C-47 - Bldg. 22 (A)
- C-48 - Bldg. 22 (B)
- C-59 - Bldg. 897
- C-60 - Bldg. 896/897 Staging Area
- C-62 - Bldg. 646
- C-63 - Bldg. 912
- C-64 - Bldg. 995
- C-65 - Bldg. 992
- C-7 - Bldg. 754
- C-72 & M-29 - Photo Lab & Bldg. 7 Silver Recovery Units
- C-73 - Dry Dock #1
- C-74 - Dry Dock #2
- C-75 - Dry Dock #3
- C-76 - Dry Dock #4
- C-77 - Dry Dock #5
- C-78 - Pier 1
- C-79 - Pier 2
- C-81 - Pier 5
- C-82 - Pier 6
- C-83 - Pier 6A
- D-2 - Flammable Trash Dumpsters

- Former Mustin Airfield
- IR Sites 3, 4, & 5 (Girard Point Management Area) including Site 3 - Transformer Storage Area Building 825, Site 4 - Girard Point Landfill, Site 5 - Girard Point Blasting Grit Area
- IR Site 10 - Dry Docks 4 and 5 Disposal Area
- IR Site 12 - Fuel Farm Area
- IR Site 15 - Vacant Lot, Former Bldg. 599
- M-11 - Bldg. 925 UST Removal Site
- M-19 - Dry Docks #1 through #5 Sumps
- M-23 - Bldg. 646 Shredder
- M-24, M-25, M-34: M-24 - DRMO Reclaimed Items Yard, M-25 - DRMO Scrap Yard, M-34 - Bldg. 647 Lot
- M-26 - DRMO Oil Pad
- M-27 - Bldg. 880 Paint Room
- M-28 - Bldg. 880 Outdoor Paint Area
- M-32/M-18 - Utility Trenches Fuel Oil Contamination Area
- M-33 - Bldg. 59 Assembly Building Paint Area
- M-36 & T-4 - M-36 - Bldg. 96 Former Waste Oil Storage Tank Area
- M-38 - Bldg. 694 UST Removal Site
- M-7 - Northwest Parking Lot
- M-8 - Girard Point Incinerator
- PNB-14 - Oil storage tank No. 871
- PNB-17 - Concrete underground storage tank No. 856
- PNB-18 - Concrete underground storage tank No. 870
- PNB-19 - Gasoline tank farm
- PNB-22 - Concrete pads
- PNB-23 - Drum storage area
- PNB-25 - Gasoline storage tank No. 857
- PNB-26 - Aircraft parking area
- PNB-28 - Pit-Building 59
- PNB-3 - Gasoline storage tanks
- PNB-32 - Waste collection area
- PNB-33 - Tank piping Building 120
- PNB-8 - Gasoline tanks
- PNSY-1 - Antenna storage area east of Building 121
- PNSY-10 - Wharves
- PNSY-11 - Building 880
- PNSY-21 - Building 57

- PNSY-22 - Power plant laydown area
- PNSY-3 - Bldg. 571 Waste accumulation area
- PNSY-7 - Building 18 machine shop
- R-1 - Bldg. 896
- W-1 - Bldg. 535 Washrack
- W-2 - Bldg. 539 Washrack
- W-3 - Bldg. 96 Wash Area
- WP-1 - Excavated UST Contaminated Soil Waste Pile
- WP-2 - Girard Point Blasting Grit Waste Piles
- WP-4 - Temporary IR Program Site 3 Waste Pile
- X-X - Kau Park Drum Staging Area

4.3 Final Recommendations for Site Inspection

The former Navy sites identified in Section 4.1 are recommended for further PFAS evaluation and for further evaluation as part of an SI for PFAS (Table 4-1). Objectives of future investigations may include:

- Determining if PFAS are present in site media. Soil and groundwater samples are proposed to be collected for analysis of the list of 18 PFAS included in the USEPA Method 537.1 using a laboratory- specific method compliant with Table B-15 of the Quality System Manual.

- Refinement of the CSM for PFAS releases and migration to support future investigation, remediation (if necessary), and long-term monitoring decisions for the transferred parcels of the former base.

- Based on the results of soil and groundwater sampling (see first bullet), develop an overall strategy for addressing PFAS impacts to on-site and off-site environmental media (soil, groundwater, surface water, and sediment) and potential receptors by considering potential non-Navy sources, former Navy sources (transferred under BRAC), and Navy sources on retained former NAVSTA/NSY Philadelphia property.

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TABLES

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Table 1-1: List of PFAS-Related Keywords Used in Potential Offsite Source Assessment

PFAS-Related Keywords Used in Assessment of Potential Offsite Sources
Aviation hydraulic oil
Cardboard
Carpets
Cleaning agent
Electrical
Fire-fighting foam
Leather
Medical device
Metal plating
Mining
Oil production
Paint
Paper
Pesticide
Photographic
Polish
Semiconductor
Textile
Varnish
Wax

Table 3-1: List of PFAS-Related Keywords Used in NIRIS Search

PFAS-Related Keywords
3M
adhesive
auto hobby shop
Ansul
aqueous film forming foam
AFFF
biosolid
bulk fuel
burn area
burn pit
Chemguard
coating
crash
grease
effluent
etching bath
emergency response
equipment test area
fire fighting
fire resistant
fire training
flame resistant
flight apron
fluorinated
fluorocarbon
foam
fuel spill
fuel storage
Halon
hangar

PFAS-Related Keywords
HEF
high expansion
hydraulic fluid
hydraulic oil
stain-resistant paint
pesticide mixing
perfluorinated
perfluoroalkyl
polyfluoroalkyl
perfluorooctanoic acid
perfluorooctane sulfonate
PFAS
PFC
PFOA
PFOS
landfill
lubricant
photographic film
plating
mist suppressant
nozzle testing
oil-water separator
resin
rust inhibitor
tank farm
suppression system
washrack
warehouse
varnish
vehicle maintenance

Table 3-2: UCMR 3 PFAS Data
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PWSID	PWS Name	Size	Facility ID	Facility Name	Facility Water Type	Sample Point ID	Sample Point Name	Sample Point Type	Associated Facility ID	Associated Sample Point ID	Collection Date	Sample ID	Contaminant	MRL	Method ID	Analytical Results Sign	Analytical Result Value	Sample Event Code	Monitoring Requirement	Region	State
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	5/8/2013	K1304429-001AM	PFBS	0.09	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	5/8/2013	K1304429-001AM	PFHpA	0.01	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	5/8/2013	K1304429-001AM	PFHxS	0.03	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	5/8/2013	K1304429-001AM	PFNA	0.02	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	5/8/2013	K1304429-001AM	PFOA	0.02	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	5/8/2013	K1304429-001AM	PFOS	0.04	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	8/5/2013	K1308152-001AM	PFBS	0.09	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	8/5/2013	K1308152-001AM	PFHpA	0.01	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	8/5/2013	K1308152-001AM	PFHxS	0.03	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	8/5/2013	K1308152-001AM	PFNA	0.02	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	8/5/2013	K1308152-001AM	PFOA	0.02	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	8/5/2013	K1308152-001AM	PFOS	0.04	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	11/5/2013	K1312445-001	PFBS	0.09	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	11/5/2013	K1312445-001	PFHpA	0.01	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	11/5/2013	K1312445-001	PFHxS	0.03	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	11/5/2013	K1312445-001	PFNA	0.02	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	11/5/2013	K1312445-001	PFOA	0.02	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	11/5/2013	K1312445-001	PFOS	0.04	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	2/4/2014	201402060553AM	PFBS	0.09	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	2/4/2014	201402060553AM	PFHpA	0.01	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	2/4/2014	201402060553AM	PFHxS	0.03	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	2/4/2014	201402060553AM	PFNA	0.02	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	2/4/2014	201402060553AM	PFOA	0.02	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	101	Baxter	SW	101	EPTDS from Baxter	EP	1	1101	2/4/2014	201402060553AM	PFOS	0.04	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	5/8/2013	K1304429-003AM	PFBS	0.09	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	5/8/2013	K1304429-003AM	PFHpA	0.01	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	5/8/2013	K1304429-003AM	PFHxS	0.03	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	5/8/2013	K1304429-003AM	PFNA	0.02	EPA 537	<		SE1	AM	3	PA
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PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	8/5/2013	K1308152-003AM	PFNA	0.02	EPA 537	<		SE2	AM	3	PA
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PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	11/5/2013	K1312445-003	PFBS	0.09	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	11/5/2013	K1312445-003	PFHpA	0.01	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	11/5/2013	K1312445-003	PFHxS	0.03	EPA 537	<		SE3	AM	3	PA
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PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	11/5/2013	K1312445-003	PFOS	0.04	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	2/4/2014	201402060555AM	PFBS	0.09	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	2/4/2014	201402060555AM	PFHpA	0.01	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	2/4/2014	201402060555AM	PFHxS	0.03	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	2/4/2014	201402060555AM	PFNA	0.02	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	2/4/2014	201402060555AM	PFOA	0.02	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	102	Belmont	SW	102	EPTDS from Belmont	EP	1	3913	2/4/2014	201402060555AM	PFOS	0.04	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	5/8/2013	K1304429-005AM	PFBS	0.09	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	5/8/2013	K1304429-005AM	PFHpA	0.01	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	5/8/2013	K1304429-005AM	PFHxS	0.03	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	5/8/2013	K1304429-005AM	PFNA	0.02	EPA 537	<		SE1	AM	3	PA

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Table 3-2: UCMR 3 PFAS Data
Page 2 of 4

PWSID	PWS Name	Size	Facility ID	Facility Name	Facility Water Type	Sample Point ID	Sample Point Name	Sample Point Type	Associated Facility ID	Associated Sample Point ID	Collection Date	Sample ID	Contaminant	MRL	Method ID	Analytical Results Sign	Analytical Result Value	Sample Event Code	Monitoring Requirement	Region	State
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PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	5/8/2013	K1304429-005AM	PFOS	0.04	EPA 537	<		SE1	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	8/5/2013	K1308152-005AM	PFBS	0.09	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	8/5/2013	K1308152-005AM	PFHpA	0.01	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	8/5/2013	K1308152-005AM	PFHxS	0.03	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	8/5/2013	K1308152-005AM	PFNA	0.02	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	8/5/2013	K1308152-005AM	PFOA	0.02	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	8/5/2013	K1308152-005AM	PFOS	0.04	EPA 537	<		SE2	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	11/5/2013	K1312445-005	PFBS	0.09	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	11/5/2013	K1312445-005	PFHpA	0.01	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	11/5/2013	K1312445-005	PFHxS	0.03	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	11/5/2013	K1312445-005	PFNA	0.02	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	11/5/2013	K1312445-005	PFOA	0.02	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	11/5/2013	K1312445-005	PFOS	0.04	EPA 537	<		SE3	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	2/4/2014	201402060557AM	PFBS	0.09	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	2/4/2014	201402060557AM	PFHpA	0.01	EPA 537	<		SE4	AM	3	PA
PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	2/4/2014	201402060557AM	PFHxS	0.03	EPA 537	<		SE4	AM	3	PA
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PA1510001	Philadelphia Water Department	L	103	Queen Lane	SW	103	EPTDS from Queen Lane	EP	1	2403	2/4/2014	201402060557AM	PFOS	0.04	EPA 537	<		SE4	AM	3	PA
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	10/21/2014	3126912	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	10/21/2014	3126912	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	10/21/2014	3126912	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	10/21/2014	3126912	PFNA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	10/21/2014	3126912	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	10/21/2014	3126912	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	4/27/2015	3232013	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	4/27/2015	3232013	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	4/27/2015	3232013	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	4/27/2015	3232013	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	4/27/2015	3232013	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	5014	Academy Ave. Treatment	GW	TP005014	EPTDS from Academy Ave. Treatment	EP	15379	DBPMAX	4/27/2015	3232013	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	10/21/2014	3126957	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	10/21/2014	3126957	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	10/21/2014	3126957	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	10/21/2014	3126957	PFNA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	10/21/2014	3126957	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	10/21/2014	3126957	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	1/14/2015	3170532	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	1/14/2015	3170532	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	1/14/2015	3170532	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	1/14/2015	3170532	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	1/14/2015	3170532	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	1/14/2015	3170532	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	4/27/2015	3232193	PFBS	0.09	EPA 537	<		SE3	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	4/27/2015	3232193	PFHpA	0.01	EPA 537	<		SE3	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	4/27/2015	3232193	PFHxS	0.03	EPA 537	<		SE3	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	4/27/2015	3232193	PFNA	0.02	EPA 537	<		SE3	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	4/27/2015	3232193	PFOA	0.02	EPA 537	<		SE3	AM	2	NJ

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Table 3-2: UCMR 3 PFAS Data
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PWSID	PWS Name	Size	Facility ID	Facility Name	Facility Water Type	Sample Point ID	Sample Point Name	Sample Point Type	Associated Facility ID	Associated Sample Point ID	Collection Date	Sample ID	Contaminant	MRL	Method ID	Analytical Results Sign	Analytical Result Value	Sample Event Code	Monitoring Requirement	Region	State
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	4/27/2015	3232193	PFOS	0.04	EPA 537	<		SE3	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	7/14/2015	3279432	PFBS	0.09	EPA 537	<		SE4	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	7/14/2015	3279432	PFHpA	0.01	EPA 537	<		SE4	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	7/14/2015	3279432	PFHxS	0.03	EPA 537	<		SE4	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	7/14/2015	3279432	PFNA	0.02	EPA 537	<		SE4	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	7/14/2015	3279432	PFOA	0.02	EPA 537	<		SE4	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	7019	Consecutive Connection	SW	CC007019	NJEMS 08-215 - West Deptford	EP	15379	DBPMAX	7/14/2015	3279432	PFOS	0.04	EPA 537	<		SE4	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126864	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126864	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126864	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126864	PFNA	0.02	EPA 537	=	0.03	SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126864	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126864	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232040	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232040	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232040	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232040	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232040	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	1001	Jessup Rd. Treatment	GW	TP001001	EPTDS from Jessup Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232040	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	10/21/2014	3126922	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	10/21/2014	3126922	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	10/21/2014	3126922	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	10/21/2014	3126922	PFNA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	10/21/2014	3126922	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	10/21/2014	3126922	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	4/27/2015	3232051	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	4/27/2015	3232051	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	4/27/2015	3232051	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	4/27/2015	3232051	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	4/27/2015	3232051	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	3007	Kings Highway Treatment	GW	TP003007	EPTDS from Kings Highway Treatment	EP	15379	DBPMAX	4/27/2015	3232051	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126895	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126873	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126895	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126873	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126873	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126895	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126895	PFNA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126873	PFNA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126873	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126895	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126895	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	10/21/2014	3126873	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232072	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232004	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232072	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232004	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232072	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232004	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ

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Table 3-2: UCMR 3 PFAS Data
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PWSID	PWS Name	Size	Facility ID	Facility Name	Facility Water Type	Sample Point ID	Sample Point Name	Sample Point Type	Associated Facility ID	Associated Sample Point ID	Collection Date	Sample ID	Contaminant	MRL	Method ID	Analytical Results Sign	Analytical Result Value	Sample Event Code	Monitoring Requirement	Region	State
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232072	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232004	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232072	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232004	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	2004	Parkville Rd. Treatment	GW	TP002004	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232072	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	6017	Parkville Rd. Treatment	GW	TP006017	EPTDS from Parkville Rd. Treatment	EP	15379	DBPMAX	4/27/2015	3232004	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	10/21/2014	3126882	PFBS	0.09	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	10/21/2014	3126882	PFHpA	0.01	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	10/21/2014	3126882	PFHxS	0.03	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	10/21/2014	3126882	PFNA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	10/21/2014	3126882	PFOA	0.02	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	10/21/2014	3126882	PFOS	0.04	EPA 537	<		SE1	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	4/27/2015	3232027	PFBS	0.09	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	4/27/2015	3232027	PFHpA	0.01	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	4/27/2015	3232027	PFHxS	0.03	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	4/27/2015	3232027	PFNA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	4/27/2015	3232027	PFOA	0.02	EPA 537	<		SE2	AM	2	NJ
NJ0820001	West Deptford Township Water Department	L	4011	Redbank Oakland Treatment	GW	TP004011	EPTDS from Redbank Oakland Treatment	EP	15379	DBPMAX	4/27/2015	3232027	PFOS	0.04	EPA 537	<		SE2	AM	2	NJ

References:

USEPA. 2017. Occurrence Data for the Unregulated Contaminant Monitoring Rule. UCMR3 Occurrence Data. January. https://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule#3

PWSID - Public Water System Identification Code, 9-character identification code (Begins with the standard 2-character postal State abbreviation or Region code, and the remaining seven numbers are unique to each PWS in the state).

PWSName - Name of the Public Water System (PWS).

Size - Size category of the PWS for UCMR, based on retail population as of December 31, 2010: S (≤ 10,000), L (> 10,000).

Facility ID - Public Water System Facility Identification Code, 5-digit identification code.

Facility Name - Name of the facility at the PWS.

Facility Water Type - Source of water at the facility: SW (surface water), GW (ground water), GU (ground water under the direct influence of surface water), MX (Any combination of: SW, GW and GU).

Sample Point ID - Identification code for each sample point location in the PWS.

Sample Point Name - Name of the sample point for every sample point ID at a PWS.

Sample Point Type - Sampling Point Type Code: EP (entry point to the distribution system), MR (distribution system at maximum residence time).

Associated Facility ID - The facility ID of the associated MR.

Associated Sample Point ID - The sample point ID of the associated MR.

Collection Date - Date of the sample collection (month, day, year).

Sample ID - Identification code for each sample, as defined by the laboratory.

Contaminant - Unregulated contaminant being analyzed in UCMR 3.

MRL - Minimum Reporting Level defined by UCMR 3 in µg/L for the chemicals.

Method ID - Identification code of the analytical method.

Analytical Results Sign - Less than (<) the minimum reporting level (MRL) or equal to (=) a numeric value at or above the MRL.

Analytical Results Value - Numeric value of the analytical result in µg/L for the chemicals, null values represent less than MRL.

Sample Event Code - Identification code for each sample event. Includes sample event one (SE1), sample event two (SE2), sample event three (SE3), and sample event four (SE4).

Monitoring Requirement - AM (Assessment Monitoring, List 1), SS (Screening Survey, List 2), PST (Pre-Screen Testing, List 3).

Region - EPA Region (States): 1 (CT, ME, MA, NH, RI, VT), 2 (NJ, NY, PR (Puerto Rico), VI (Virgin Islands)), 3 (DE, DC, MD, PA, VA, WV), 4 (AL, FL, GA, KY, MS, NC, SC, TN), 5 (IL, IN, MI, MN, OH, WI), 6 (AR, LA, NM, OK, TX), 7 (IA, KS, MO, NE), 8 (CO, MT, ND, SD, UT, WY), 9 (AZ, CA, HI, NV, AS (American Samoa), GU (Guam), MP (Northern Marianas Islands), NN (Navajo Nation)), 10 (AK, ID, OR, WA).

State - State abbreviation.

Zip Code - U.S. Postal Service zip code(s) for all areas being served water by a PWS.

PFOS - perfluorooctanesulfonic acid

PFOA - perfluorooctanoic acid

PFNA - perfluorononanoic acid

PFHxS - perfluorohexanesulfonic acid

PFHpA - perfluoroheptanoic acid

PFBS - perfluorobutanesulfonic acid

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Table 3-3: Data for Wells within 1 Mile of Transferred Areas
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PAWell ID	County	Municipality	Quad Name	Well Address	Well Zip Code	Date Drilled	Type Of Activity	Latitude DD	Longitude DD	Driller	Original Owner	Well Use	Water Use	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Water Level After Yield Test (ft)	Length Of Test (min)	Yield Measurement Method	Saltwater Zone (ft)	Formation Name
29731	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			7/1/1944		39.88611	-75.19722	ARTESIAN WELL DRLG CO	U S NAVY	DESTROYED	UNUSED		0	66	10		FALSE		19.1					TRENTON GRAVEL
29747	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			01/01/1897		39.89083	-75.17611	P. H. & J. CONLAN	U S NAVY	DESTROYED	UNUSED	600	0	260	10		FALSE	25				REPORTED METHOD NOT KNOWN		WISSAHICKON FORMATION
29752	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			12/01/1899		39.89111	-75.17583	THOMAS B HARPER	U S NAVY	DESTROYED	UNUSED	906	0	260	10		FALSE	53	28			REPORTED METHOD NOT KNOWN		WISSAHICKON FORMATION
29754	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1945		39.89139	-75.16722	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	51.5	0		3		FALSE							TRENTON GRAVEL
29758	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/1/1942		39.89528	-75.19167	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED						FALSE							MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29760	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/23/1929		39.89583	-75.14583	RIDPATH AND POTTER COMPANY	CONRAIL	DESTROYED	UNUSED	89	0		10		FALSE	150	25			REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29761	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/21/1929		39.89583	-75.14611	RIDPATH AND POTTER COMPANY	CONRAIL	DESTROYED	UNUSED	189	0		18		FALSE	750	25			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29762	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1944		39.89583	-75.17472	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	104	0		8		FALSE	350	18			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM MIDDLE SAND UNIT
29763	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1984		39.89611	-75.21417	UNKNOWN	PENN DOT	OBSERVATION	OTHER	45	0	40	4		FALSE							TRENTON GRAVEL
29764	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/18/1945		39.89694	-75.16722	LAYNE CHRISTENSEN COMPANY	U S NAVY	TEST	UNUSED	53	0	43	3		FALSE		4					TRENTON GRAVEL
29765	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			2/8/1946		39.89694	-75.16722	JOHN RULON	U S NAVY	TEST	UNUSED	211	0	206	8		FALSE		31.3					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29766	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1906		39.89694	-75.19833	THOMAS B HARPER	PA RAILROAD	DESTROYED	UNUSED	154	0	100	6		FALSE	6	20.3			REPORTED METHOD NOT KNOWN		WISSAHICKON FORMATION
29767	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1919		39.89806	-75.16167	LAYNE CHRISTENSEN COMPANY	PA RAILROAD	DESTROYED	UNUSED	187	0		8		FALSE	287	22.70909	48.8	24	REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29768	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1952		39.90056	-75.17833	RIDPATH AND POTTER COMPANY	LEAGUE ISLAND PARK	DESTROYED	UNUSED	71	0	71	6		FALSE	50	18.84211	32		REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29769	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1919		39.90111	-75.17806	ARTESIAN WELL DRLG CO	LEAGUE ISLAND PARK	DESTROYED	UNUSED	176	0		6		FALSE		31.4					WISSAHICKON FORMATION
29770	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1935		39.90222	-75.13694	LAYNE CHRISTENSEN COMPANY	CONRAIL	DESTROYED	UNUSED						FALSE							MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29771	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1919		39.90222	-75.17778	ARTESIAN WELL DRLG CO	LEAGUE ISLAND PARK	UNUSED	UNUSED		0		6		FALSE	100	12.7			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29772	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			12/26/1940		39.9025	-75.20056	RIDPATH AND POTTER COMPANY	PA RAILROAD	DESTROYED	UNUSED	90.5	0		8		FALSE	170	6.33	36.8		REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29773	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1936		39.9025	-75.20889	JOHN RULON	GULF OIL CORP	DESTROYED	UNUSED	90	0		6		FALSE							TRENTON GRAVEL
29774	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			6/18/1945		39.90278	-75.13639	LAYNE CHRISTENSEN COMPANY	PUBLICKER INDUSTRIES	DESTROYED	UNUSED	107	0	87	16		FALSE	750	25	85		REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29775	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			8/1/1936		39.90278	-75.20194	JOHN RULON	GULF OIL CORP	DESTROYED	UNUSED	98	0		12		FALSE	100				REPORTED METHOD NOT KNOWN		WISSAHICKON FORMATION
29776	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/1/1945		39.90417	-75.13583	LAYNE CHRISTENSEN COMPANY	PUBLICKER INDUSTRIES	DESTROYED	UNUSED	96	0	66	24		FALSE	660	25	71		REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29777	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1936		39.90417	-75.20944	SPRAGUE & HENWOOD INC	GULF OIL CORP	DESTROYED	UNUSED	81	0		2		FALSE							TRENTON GRAVEL
29778	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1936		39.90444	-75.21278	SPRAGUE & HENWOOD INC	GULF OIL CORP	DESTROYED	UNUSED	73	0		2		FALSE							TRENTON GRAVEL
29779	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1936		39.90611	-75.20833	SPRAGUE & HENWOOD INC	GULF OIL CORP	DESTROYED	UNUSED	70	0		2		FALSE							TRENTON GRAVEL
29780	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			12/17/1990		39.90667	-75.13667	EMPIRE SOILS INVESTIGATIONS INC	DELAWARE AVE ENTERPRISES	OBSERVATION	UNUSED	52	0	42	4		FALSE		9.5					TRENTON GRAVEL
29781	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1936		39.90667	-75.21222	SPRAGUE & HENWOOD INC	GULF OIL CORP	DESTROYED	UNUSED	90	0		2		FALSE							TRENTON GRAVEL
29783	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			12/3/1942		39.90722	-75.13611	LAYNE CHRISTENSEN COMPANY	PUBLICKER INDUSTRIES	WITHDRAWAL	INDUSTRIAL	83	0	63	16		FALSE	980	33.30303	63		REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29786	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			6/19/1940		39.90778	-75.13722	JOHN RULON	PUBLICKER INDUSTRIES	DESTROYED	UNUSED	152	0		16		FALSE	800	78.5			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29787	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			2/1/1940		39.90778	-75.13722	JOHN RULON	PUBLICKER INDUSTRIES	UNUSED	UNUSED	90	0		12		FALSE	400				ESTIMATED		TRENTON GRAVEL
29788	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1915		39.90806	-75.19667	ARTESIAN WELL DRLG CO	ATLANTIC REFINING CO	DESTROYED	UNUSED	74	0		6		FALSE	100	35.3			REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29789	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			10/1/1936		39.90806	-75.20917	JOHN RULON	GULF OIL CORP	DESTROYED	UNUSED	79	0		6		FALSE							TRENTON GRAVEL
29790	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			8/4/1945		39.90861	-75.14	LAYNE CHRISTENSEN COMPANY	PUBLICKER INDUSTRIES	DESTROYED	UNUSED	191	0		16		FALSE	300	82	159		REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29791	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1936		39.90861	-75.2125	SPRAGUE & HENWOOD INC	GULF OIL CORP	DESTROYED	UNUSED	106	0		2		FALSE							TRENTON GRAVEL
29801	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/28/1987		39.90944	-75.19861	AC SCHULTES INC	ARCO PETROLEUM PROD CO	WITHDRAWAL	OTHER	27	0	17	6		FALSE	3.5	24.2	27	30.5	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29802	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/27/1987		39.90944	-75.19917	AC SCHULTES INC	ARCO PETROLEUM PROD CO	WITHDRAWAL	OTHER	27	0	17	6		FALSE	5.45	23.9	27	22	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29805	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1914		39.90972	-75.19111	THOMAS B HARPER	BROOKE H	DESTROYED	UNUSED		0	72	8		FALSE	75	25			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
29808	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			6/24/1987		39.91083	-75.19583	AC SCHULTES INC	ARCO PETROLEUM PROD CO	WITHDRAWAL	OTHER	30	0	10	14		FALSE	225	12.5	20.2	337	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
29812	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA					39.91361	-75.20028	UNKNOWN	ATLANTIC REFINING CO	DESTROYED	UNUSED						FALSE							UNKNOWN
29815	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA					39.915	-75.20306	UNKNOWN	ATLANTIC REFINING CO	DESTROYED	UNUSED						FALSE							UNKNOWN
30369	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			4/2/1946		39.88722	-75.16944	JOHN RULON	U S NAVY	TEST	UNUSED	247	0		8		FALSE	18.3	36.67	38.5	1	TOTALING METER		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30370	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			10/24/1952		39.8875	-75.16861	A C SCHULTES & SONS	U S NAVY	UNUSED	UNUSED	245	0		18		FALSE	636	47	75	7	REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30371	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1944		39.88778	-75.17528	LAYNE CHRISTENSEN COMPANY	U S NAVY	UNUSED	UNUSED	230	0		24		FALSE		33.7					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30372	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/14/1946		39.88778	-75.18028	JOHN RULON	U S NAVY	TEST	UNUSED	235	0	235	8		FALSE	19.6		42.2	3	TOTALING METER		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30373	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/5/1953		39.88833	-75.16083	A C SCHULTES & SONS	U S NAVY	DESTROYED	UNUSED	229	0	195	18		FALSE		31.7					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30375	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/23/1943		39.88917	-75.15306	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	204	0		30		FALSE	710	31.5			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30376	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			4/21/1942		39.88972	-75.18556	LAYNE CHRISTENSEN COMPANY	U S NAVY	UNUSED	UNUSED	173	0		30		FALSE	735	28.4					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30377	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1945		39.89056	-75.17083	LAYNE CHRISTENSEN COMPANY	U S NAVY	TEST	UNUSED	69	0	59	3		FALSE		19.1					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM UPPER SAND UNIT
30379	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/1/1941		39.89111	-75.17472	HARRIS HARMAN WELL CO.	U S NAVY	UNUSED	UNUSED	268	0	238	12		FALSE	860	25.5			REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30380	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			2/1/1941		39.89111	-75.17611	HARRIS HARMAN WELL CO.	U S NAVY	UNUSED	UNUSED	267	0		20		FALSE		25.8					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30381	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			7/1/1940		39.89139	-75.17	LAYNE CHRISTENSEN COMPANY	U S NAVY	UNUSED	UNUSED	232	0	207	12		FALSE		18					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30382	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			11/25/1944		39.89222	-75.17361	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	59	0	50	8		FALSE	98		33.6		REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
30384	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			8/1/1945		39.89278	-75.16861	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	140	0		24		FALSE		29.2					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM MIDDLE SAND UNIT
30385	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/1/1940		39.89278	-75.16917	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	233	0	207	12		FALSE	730		79		REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30386	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			7/1/1945		39.89333	-75.17028	LAYNE CHRISTENSEN COMPANY	U S NAVY	TEST	UNUSED	56	0	46	3		FALSE	5.8		23.5	1	VOLUMETRIC WATCH & BUCKET		TRENTON GRAVEL
30387	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/1/1945		39.89333	-75.17417	LAYNE CHRISTENSEN COMPANY	U S NAVY	DESTROYED	UNUSED	62	0	52	3		FALSE		28.5					TRENTON GRAVEL
30388	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			11/15/1944		39.895	-75.1725	LAYNE CHRISTENSEN COMPANY	U S NAVY	OBSERVATION	UNUSED	101	0		8		FALSE		17.4					MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM MIDDLE SAND UNIT
30389	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			4/6/1936		39.89611	-75.14556	LAYNE CHRISTENSEN COMPANY	CONRAIL	DESTROYED	UNUSED	199	0		26		FALSE	730	26.5	63		REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30390	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/5/1952		39.89611	-75.17444	A C SCHULTES & SONS	U S NAVY	DESTROYED	UNUSED	208	0	168	18		FALSE	831	43.83333	90	8	REPORTED METHOD NOT KNOWN		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30391	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			6/20/1942		39.89667	-75.18306	LAYNE CHRISTENSEN COMPANY	U S NAVY	UNUSED	UNUSED	163	0		18		FALSE	17.6		20.2	1	TOTALING METER		MAGOTHY-RARITAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT

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Table 3-3: Data for Wells within 1 Mile of Transferred Areas
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PAWell ID	County	Municipality	Quad Name	Well Address	Well Zip Code	Date Drilled	Type Of Activity	Latitude DD	Longitude DD	Driller	Original Owner	Well Use	Water Use	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Water Level After Yield Test (ft)	Length Of Test (min)	Yield Measurement Method	Saltwater Zone (ft)	Formation Name
30392	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			10/6/1952		39.89694	-75.17167	A C SCHULTES & SONS	U S NAVY	UNUSED	UNUSED	206	0	176	12		FALSE		34					MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30393	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/12/1940		39.89778	-75.16111	LAYNE CHRISTENSEN COMPANY	PA RAILROAD	DESTROYED	UNUSED	179	0	33	20		FALSE	300	28.92308	52		REPORTED METHOD NOT KNOWN		MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30394	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			5/22/1941		39.89778	-75.16194	LAYNE CHRISTENSEN COMPANY	PA RAILROAD	DESTROYED	UNUSED	183	0		16		FALSE	482	27.22222	54		REPORTED METHOD NOT KNOWN		MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30395	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1919		39.89806	-75.16083	LAYNE CHRISTENSEN COMPANY	PA RAILROAD	DESTROYED	UNUSED	169	0		8		FALSE	215	21.9359	49.5	24	REPORTED METHOD NOT KNOWN		MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30396	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1919		39.90028	-75.17889	ARTESIAN WELL DRLG CO	LEAGUE ISLAND PARK	DESTROYED	UNUSED		0		6		FALSE	100				REPORTED METHOD NOT KNOWN		MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30397	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1919		39.90083	-75.18028	ARTESIAN WELL DRLG CO	LEAGUE ISLAND PARK	DESTROYED	UNUSED	82	0		6		FALSE	100	9.4			REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
30398	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1946		39.90278	-75.20194	JOHN RULON	GULF OIL CORP	WITHDRAWAL	INDUSTRIAL	82	0	72	6		FALSE		11.9					MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30399	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			3/1/1946		39.90278	-75.20194	JOHN RULON	GULF OIL CORP	WITHDRAWAL	INDUSTRIAL	82	0	72	6		FALSE	420	11.6		4	REPORTED METHOD NOT KNOWN		MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30400	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			8/7/1942		39.90722	-75.17722	LAYNE CHRISTENSEN COMPANY	U S NAVAL HOSPITAL	DESTROYED	UNUSED	132	0	107	10		FALSE	440	28.2			REPORTED METHOD NOT KNOWN		MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30402	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/11/1942		39.90806	-75.18056	LAYNE CHRISTENSEN COMPANY	U S NAVAL HOSPITAL	DESTROYED	UNUSED	142	0		24		FALSE		10.2					MAGOTHY-RARTAN-POTOMAC AQUIFER SYSTEM LOWER SAND UNIT
30407	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1935		39.90889	-75.16833	UNKNOWN	COX S	DESTROYED	UNUSED	36					FALSE							TRENTON GRAVEL
30414	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			1/1/1903		39.91222	-75.19972	THOMAS B HARPER	PRINTZ DEGREASING CO	DESTROYED	UNUSED	253	0	106	6		FALSE	60	14			REPORTED METHOD NOT KNOWN		WISSAHICKON FORMATION
48199	PHILADELPHIA		PHILADELPHIA			3/14/1994		39.90667	-75.19444	EMPIRE SOILS INVESTIGATIONS INC	SUN COMPANY	OBSERVATION	UNUSED	130	0	120	2		FALSE							TRENTON GRAVEL
48200	PHILADELPHIA		PHILADELPHIA			3/2/1994		39.90889	-75.20528	EMPIRE SOILS INVESTIGATIONS INC	SUN COMPANY	OBSERVATION	UNUSED	64	0	54	2		FALSE							TRENTON GRAVEL
48201	PHILADELPHIA		PHILADELPHIA			8/18/1995		39.91556	-75.20278	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	18	0	8	6		FALSE	4	8	15	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48202	PHILADELPHIA		PHILADELPHIA			8/10/1995		39.91556	-75.20278	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	18	0	8	6		FALSE	0.2	8	15	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48360	PHILADELPHIA		PHILADELPHIA			8/2/1995		39.91444	-75.20306	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	18					FALSE	0.1	10	15	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48362	PHILADELPHIA		PHILADELPHIA			8/9/1995		39.915	-75.20306	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	18					FALSE	0.3	10	15	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48363	PHILADELPHIA		PHILADELPHIA			5/9/1994		39.91528	-75.19972	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	31					FALSE	1.6	18	24	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48364	PHILADELPHIA		PHILADELPHIA			5/10/1994		39.91528	-75.20028	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	27					FALSE	1	18	24	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48365	PHILADELPHIA		PHILADELPHIA			5/5/1994		39.91528	-75.20139	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	29					FALSE	3	18	24	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48366	PHILADELPHIA		PHILADELPHIA			8/3/1995		39.91528	-75.20278	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	18	0	8	6		FALSE	0.4	8	15	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48367	PHILADELPHIA		PHILADELPHIA			5/9/1994		39.91556	-75.20111	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	28					FALSE	0.5	18	24	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48368	PHILADELPHIA		PHILADELPHIA			8/9/1995		39.91556	-75.20278	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	18					FALSE	3.5	8	15	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
48369	PHILADELPHIA		PHILADELPHIA			5/20/1994		39.91639	-75.19167	UNKNOWN	SUN COMPANY	WITHDRAWAL	OTHER	36	0	26	6		FALSE	0.3	24	26	168	REPORTED METHOD NOT KNOWN		TRENTON GRAVEL
478667	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA - OFF S 26TH ST		8/27/2008	NEW WELL	39.91583	-75.19528	PARRATT-WOLFF INC	SUNOCO	WITHDRAWAL	OTHER	30					FALSE							
478886	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA - OFF S 26TH ST		8/27/2008	NEW WELL	39.91556	-75.19361	PARRATT-WOLFF INC	SUNOCO	WITHDRAWAL	OTHER	30					FALSE							
480444	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3540 S. Lawrence	19148	7/28/2009	NEW WELL	39.90349	-75.1584	ENVIRONMENTAL PROBING INVESTIGATIONS INC	Former Walt	MONITORING	INDUSTRIAL	19	0	5	4		TRUE	1	9		30	OTHER		
480445	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3540 S. Lawrence	19148	8/3/2009	NEW WELL	39.90349	-75.1584	ENVIRONMENTAL PROBING INVESTIGATIONS INC	Former Walt	MONITORING	INDUSTRIAL	15	0	5	4		TRUE	1	9		30	OTHER		
480994	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA-W OF LANIER AVE		6/10/2010	NEW WELL	39.90693	-75.20995	PARRATT-WOLFF INC	SUNOCO	MONITORING		14	0	4	4		FALSE		4					
481002	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA-W OF LANIER AVE		5/27/2010	NEW WELL	39.90545	-75.21198	PARRATT-WOLFF INC	SUNOCO	MONITORING		12	0	2	4		FALSE		2					
481013	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA-E OF LANIER AVE		5/14/2010	NEW WELL	39.91004	-75.20221	PARRATT-WOLFF INC	SUNOCO	MONITORING		20	0	5	4		FALSE		8					
481016	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA-E OF LANIER AVE		6/16/2010	NEW WELL	39.90708	-75.20293	PARRATT-WOLFF INC	SUNOCO	MONITORING		16	0	6	4		FALSE		6					
481021	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA-N OF HARTRANFT		6/8/2010	NEW WELL	39.91585	-75.19702	PARRATT-WOLFF INC	SUNOCO	MONITORING		30	0	15	4		FALSE		30					
481203	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3540 S. Lawrence	19148	8/3/2009	NEW WELL	39.90349	-75.1584	ENVIRONMENTAL PROBING INVESTIGATIONS INC	Former Walt	MONITORING	INDUSTRIAL	18	0	5	4		TRUE	1	9		30	OTHER		
481761	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - OFF SCHUYLKILL AVE		6/2/2010	NEW WELL	39.91001	-75.20656	PARRATT-WOLFF INC	SUNOCO	MONITORING		14	0	6	4		FALSE		7					
481762	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - W OF LANIER AVE		6/2/2010	NEW WELL	39.90896	-75.20578	PARRATT-WOLFF INC	SUNOCO	MONITORING		15	0	5	4		FALSE		5					
481763	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - W OF LANIER AVE		6/3/2010	NEW WELL	39.90421	-75.20569	PARRATT-WOLFF INC	SUNOCO	MONITORING		14	0	4	4		FALSE							
481764	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - W OF LANIER AVE		6/15/2010	NEW WELL	39.90485	-75.20739	PARRATT-WOLFF INC	SUNOCO	MONITORING		14	0	4	4		FALSE		4					
481770	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - W OF LANIER AVE		5/27/2010	NEW WELL	39.90672	-75.21071	PARRATT-WOLFF INC	SUNOCO	MONITORING		14	0	4	4		FALSE		4					
481776	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - W OF LANIER AVE NEAR RIVER		5/26/2010	NEW WELL	39.9061	-75.21426	PARRATT-WOLFF INC	SUNOCO	MONITORING		11	0	1	4		FALSE		1					
481781	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - S OF HARTRANFT		5/1/2010	NEW WELL	39.91163	-75.20079	PARRATT-WOLFF INC	SUNOCO	MONITORING		25	0	10	4		FALSE		15					
481782	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - E OF LANIER		5/18/2010	NEW WELL	39.90987	-75.20477	PARRATT-WOLFF INC	SUNOCO	MONITORING		24	0	9	4		FALSE		13					
481792	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - N OF HARTRANFT		5/20/2010	NEW WELL	39.91671	-75.19776	PARRATT-WOLFF INC	SUNOCO	MONITORING		30	0	15	4		FALSE		21					
481793	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - N OF HARTRANFT		5/19/2010	NEW WELL	39.91435	-75.19581	PARRATT-WOLFF INC	SUNOCO	MONITORING		32	0	17	4		FALSE		18					
481798	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - E OF SCHUYLKILL AVE		5/12/2010	NEW WELL	39.91584	-75.2014	PARRATT-WOLFF INC	SUNOCO	MONITORING		30	0	15	4		FALSE		20					
481799	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - N OF HARTRANFT		6/11/2010	NEW WELL	39.91602	-75.20011	PARRATT-WOLFF INC	SUNOCO	MONITORING		26	0	11	4		FALSE		16					
481942	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - ALONG SCHUYLKILL AVE		5/21/2010	NEW WELL	39.91521	-75.20211	PARRATT-WOLFF INC	SUNOCO	MONITORING		30	0	15	4		FALSE		20					
483483	PHILADELPHIA	PHILADELPHIA		OFF S 26TH ST		1/27/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483484	PHILADELPHIA	PHILADELPHIA		OFF S 26TH ST		2/4/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
483486	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/6/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
483487	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/10/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		44					FALSE							
483488	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/18/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483489	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/17/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483490	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF 2 26TH ST		2/11/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483491	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/10/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483492	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/12/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483493	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/13/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40					FALSE							
483515	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/11/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484151	PHILADELPHIA	PHILADELPHIA		REFINERY AREA - OFF S 26TH ST		1/28/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO	INJECTION		42					FALSE							

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Table 3-3: Data for Wells within 1 Mile of Transferred Areas
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PAWell ID	County	Municipality	Quad Name	Well Address	Well Zip Code	Date Drilled	Type Of Activity	Latitude DD	Longitude DD	Driller	Original Owner	Well Use	Water Use	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Water Level After Yield Test (ft)	Length Of Test (min)	Yield Measurement Method	Saltwater Zone (ft)	Formation Name
484152	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		1/29/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484153	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/3/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484154	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/4/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484155	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/12/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484156	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/19/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		40.5					FALSE							
484158	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/18/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		38					FALSE							
484160	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/17/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484161	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/16/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		38					FALSE							
484162	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/12/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		38					FALSE							
484163	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/12/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		38					FALSE							
484164	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/17/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		42					FALSE							
484292	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/18/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		36					FALSE							
484293	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S 26TH ST		2/19/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	INJECTION		36					FALSE							
487860	PHILADELPHIA					6/29/2011	NEW WELL	39.91324	-75.19208	PARRATT-WOLFF INC	ARCO	MONITORING		40	0	20	4		TRUE		24					
487862	PHILADELPHIA					7/7/2011	NEW WELL	39.91258	-75.19209	PARRATT-WOLFF INC	ARCO	MONITORING		75	0	44	6		TRUE							
487864	PHILADELPHIA					6/28/2011	NEW WELL	39.91278	-75.19201	PARRATT-WOLFF INC	ARCO	MONITORING		40	0	20	4		TRUE							
488004	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	BETWEEN SCHUYLKILL AVE AND RIVER		8/22/2011	NEW WELL	39.91549	-75.20251	PARRATT-WOLFF INC	Sunoco REFINERY AREA	MONITORING		30	0	10	2		TRUE							
488537	PHILADELPHIA					6/29/2011	NEW WELL	39.91215	-75.19235	PARRATT-WOLFF INC	ARCO	MONITORING		39	0	19	4		TRUE		24					
488645	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	REFINERY AREA - BETWEEN SCHUYLKILL AVE AND RIVER		8/22/2011	NEW WELL	39.91555	-75.20272	PARRATT-WOLFF INC	Sunoco	MONITORING		25	0	5	2		TRUE							
495283	PHILADELPHIA	PHILADELPHIA		OFF S 26TH ST		2/12/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY	INJECTION		38					FALSE							
495284	PHILADELPHIA	PHILADELPHIA		OFF S 26TH ST		2/16/2009	NEW WELL	39.915	-75.19222	PARRATT-WOLFF INC	SUNOCO REFINERY	INJECTION		42					FALSE							
496787	PHILADELPHIA	PHILADELPHIA		OFF LANIER NEAR RIVER		6/3/2010	NEW WELL	39.90966	-75.21112	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		14	0	4	4		FALSE		8					
496788	PHILADELPHIA	PHILADELPHIA		E OF SCHUYLKILL AVE		5/21/2010	NEW WELL	39.91551	-75.20012	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		26	0	11	4		FALSE		16					
496789	PHILADELPHIA	PHILADELPHIA		HARTRANFT ST		5/18/2010	NEW WELL	39.91301	-75.19746	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		34	0	19	4		FALSE		23					
496790	PHILADELPHIA	PHILADELPHIA		E OF SCHUYLKILL AVE		5/7/2010	NEW WELL	39.91556	-75.20126	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		30	0	15	4		FALSE		21					
496791	PHILADELPHIA	PHILADELPHIA		E OF SCHUYLKILL AVE		5/11/2010	NEW WELL	39.91556	-75.20143	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		30	0	15	4		FALSE		22					
496795	PHILADELPHIA	PHILADELPHIA		E OF SCHUYLKILL AVE		5/11/2010	NEW WELL	39.91554	-75.20161	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		30	0	15	4		FALSE		21					
496796	PHILADELPHIA	PHILADELPHIA		E OF SCHUYLKILL AVE		5/11/2010	NEW WELL	39.91554	-75.20161	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		30	0	15	4		FALSE		20					
496797	PHILADELPHIA	PHILADELPHIA		E OF SCHUYLKILL AVE		5/7/2010	NEW WELL	39.91566	-75.20127	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		30	0	15	4		FALSE		20					
496800	PHILADELPHIA	PHILADELPHIA		W OF LANIER AVE		6/15/2010	NEW WELL	39.90421	-75.20569	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		14	0	4	3		FALSE		4					
497454	PHILADELPHIA	PHILADELPHIA		BETWEEN LANIER AVE AND RIVER		6/2/2010	NEW WELL	39.90783	-75.21133	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		12	0	4	4		FALSE		2					
497455	PHILADELPHIA	PHILADELPHIA		N OF HARTRANFT ST		6/4/2010	NEW WELL	39.91509	-75.19739	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		18	0	8	4		FALSE		8					
497456	PHILADELPHIA	PHILADELPHIA		NR CNR HARTRANFT AND SCHUYLKILL AVE		6/10/2010	NEW WELL	39.91386	-75.20112	PARRATT-WOLFF INC	SUNOCO REFINERY AREA	MONITORING		26	0	11	4		FALSE		16					
498642	PHILADELPHIA	PHILADELPHIA		5001 S Broad St	19112	3/12/2012	NEW WELL	39.89339	-75.17857	ENVIRONMENTAL FIELD SERVICE INC	Naval Facilities Engineering Command	MONITORING	OTHER	12	0	2	2		TRUE	1	6					
498644	PHILADELPHIA	PHILADELPHIA		5001 S Broad St	19112	3/13/2012	NEW WELL	39.89316	-75.17784	ENVIRONMENTAL FIELD SERVICE INC	Naval Facilities Engineering Command	MONITORING	OTHER	12	0	2	2		TRUE	1	6					
498705	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	5001 South Broad St	19112	3/13/2012	NEW WELL	39.89298	-75.17842	ENVIRONMENTAL FIELD SERVICE INC	Naval Facilities Engineering Command	MONITORING	OTHER	12	0	2	2		TRUE	1	5			ESTIMATED		
500066	PHILADELPHIA			1515 Arch St Philadelphia	19102	4/26/2006	WELL ABANDONMENT	39.90501	-75.17699	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500067	PHILADELPHIA			1515 Arch St Philadelphia	19102	7/6/2006	WELL ABANDONMENT	39.90486	-75.17737	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500068	PHILADELPHIA			1515 Arch St Philadelphia	19102	7/6/2006	WELL ABANDONMENT	39.90479	-75.1773	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500069	PHILADELPHIA			1515 Arch St Philadelphia	19102	7/6/2006	WELL ABANDONMENT	39.90472	-75.17722	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500142	PHILADELPHIA			1515 Arch Street Philadelphia	19102	4/26/2006	WELL ABANDONMENT	39.90515	-75.17674	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500143	PHILADELPHIA			1515 Arch Street Philadelphia	19102	4/26/2006	WELL ABANDONMENT	39.90491	-75.17716	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500144	PHILADELPHIA			1515 Arch St. Philadelphia	19102	4/26/2006	WELL ABANDONMENT	39.90485	-75.177	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
500145	PHILADELPHIA			1515 Arch St. Philadelphia	19102	4/26/2012	WELL ABANDONMENT	39.90485	-75.17715	ODYSSEY ENVIRONMENTAL SERVICES INC.	City of Philadelphia	MONITORING		20					FALSE							
504475	PHILADELPHIA			S. 23rd Street Philadelphia PA 19145		1/14/2013	NEW WELL	39.91443	-75.18673	AMERIDRILL INC.	Defense Logistics Agency	MONITORING		45	0	15	4		TRUE							
510374	PHILADELPHIA					5/8/2013	NEW WELL	39.90555	-75.19301	TPI ENVIRONMENTAL INC.	Geosyntec Consultants	WITHDRAWAL	MONITORING	20	0	10	2		FALSE							
512462	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90403	-75.19439	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		32	0	32	4		FALSE							
512463	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90233	-75.19761	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		26	0	26	2		FALSE							
512464	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90328	-75.19667	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		26	0	26	2		FALSE							
512465	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90258	-75.19628	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		27	0	27	2		FALSE							
512466	PHILADELPHIA	PHILADELPHIA		26th Street	19145	7/13/2013	WELL ABANDONMENT	39.90167	-75.19744	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		30	0	30	4		FALSE							
512467	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90161	-75.19622	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		22	0	22	4		FALSE							
512482	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90308	-75.19547	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		35	0	35	2		FALSE							
512483	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90214	-75.19578	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		25	0	25	2		FALSE							
512484	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90172	-75.19647	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		17	0	17	2		FALSE							
512485	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90114	-75.19694	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		17	0	17	2		FALSE							
512486	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90158	-75.19606	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		22	0	22	2		FALSE							
512487	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90339	-75.19633	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		30	0	30	4		FALSE							
512488	PHILADELPHIA	PHILADELPHIA		26th Street	19145	6/13/2013	WELL ABANDONMENT	39.90253	-75.19467	ALLIED WELL DRILLING	Danbro L.P.	MONITORING		30	0	30	2		FALSE							
552340	PHILADELPHIA	PHILADELPHIA				3/4/2014	NEW WELL	39.91665	-75.19384	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	57	0	52	4		FALSE							

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Table 3-3: Data for Wells within 1 Mile of Transferred Areas
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PAWell ID	County	Municipality	Quad Name	Well Address	Well Zip Code	Date Drilled	Type Of Activity	LatDade DD	LongDade DD	Driller	Original Owner	Well Use	Water Use	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Water Level After Yield Test (ft)	Length Of Test (min)	Yield Measurement Method	Saltwater Zone (ft)	Formation Name
552350	PHILADELPHIA	PHILADELPHIA				3/5/2014	NEW WELL	39.91576	-75.19208	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	54	0	49	4		FALSE							
552524	PHILADELPHIA	PHILADELPHIA				12/18/2013	NEW WELL	39.91667	-75.19388	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	92	0	82	4		FALSE							
552526	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	2615 Hartranft St		1/9/2014	NEW WELL	39.91301	-75.19408	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	72	0	62	4		FALSE							
552538	PHILADELPHIA	PHILADELPHIA				12/3/2013	NEW WELL	39.91569	-75.19208	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	89	0	79	4		FALSE							
594162	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			12/10/2014	NEW WELL	39.91684	-75.19541	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	35	0	15	4		FALSE							
594163	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			12/5/2014	NEW WELL	39.91707	-75.19437	PARRATT-WOLFF INC	Evergreen Resource Management	MONITORING	OTHER	30	0	10	4		FALSE							
596905	PHILADELPHIA	PHILADELPHIA		2601 PENROSE AVE.	19145	10/15/2012	NEW WELL	39.90588	-75.19399	EICHELBERGERS INC.	SUN COMPANY INC.	OBSERVATION	UNUSED	25	0	5	4		TRUE							
603971	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	4716 S 15th St	19112	3/30/2015	NEW WELL	39.89292	-75.178	EAST COAST DRILLING INC	Philadelphia	MONITORING		13	0	3	2		TRUE	0.5	3	3	60	BAILER		
603982	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	4700 S 15th St	19112	4/2/2015	NEW WELL	39.89338	-75.17812	EAST COAST DRILLING INC	Philadelphia	MONITORING		13	0	3	2		TRUE	0.5	2.5	10	60	BAILER		
603983	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	4749 S 15th St	19112	3/30/2015	NEW WELL	39.89275	-75.17723	EAST COAST DRILLING INC	Philadelphia	MONITORING		13	0	3	2		TRUE	0.5	2.3	10	120	BAILER		
605248	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NR PATTISON AND PENROSE AVES		11/23/2005	NEW WELL	39.90796	-75.18946	B. L. MYERS BROS OF MDLLC	Former Passyunk Homes - PHILA HOUSING AUTHORITY	MONITORING	OTHER	35					TRUE							
605249	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NR PATTISON AND PENROSE		11/23/2005	NEW WELL	39.90796	-75.18946	B. L. MYERS BROS OF MDLLC	Former Passyunk Homes - PHILA HOUSING AUTHORITY	WITHDRAWAL	MONITORING	35					TRUE							
605250	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR PATTISON AND PENROSE AVES		11/23/2005	NEW WELL	39.90796	-75.18946	B. L. MYERS BROS OF MDLLC	Former Passyunk Homes - PHIL HOUSING AUTHORITY	MONITORING	OTHER	30					TRUE							
605567	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S DELAWARE AVE		9/28/2001	NEW WELL	39.90477	-75.13933	B. L. MYERS BROS OF MDLLC	Packer Ave Marine Terminal	MONITORING	OTHER	15					TRUE		8					
605568	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S DELAWARE AVE		9/28/2001	NEW WELL	39.90477	-75.13933	B. L. MYERS BROS OF MDLLC	Packer Ave Marine Terminal	MONITORING	OTHER	15					TRUE		8					
605762	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	FMR BIGLER TERRACE NEAR 23RD ST		11/24/1998	NEW WELL	39.91377	-75.18776	LUTZ ENVIRONMENTAL CO. INC.	FMR PASSYUNK HOMES	WITHDRAWAL	MONITORING	32					TRUE	75	19	19	180			
605763	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	FMR BIGLER TERRACE NEAR 24TH ST		11/23/1998	NEW WELL	39.91377	-75.18776	LUTZ ENVIRONMENTAL CO. INC.	FMR PASSYUNK HOMES AREA	MONITORING	OTHER	35					TRUE	75	20	20	210			
616914	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89971	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	18					FALSE							
616998	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	18					FALSE							
616999	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	20					FALSE							
617000	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20307	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	22					FALSE							
617001	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89971	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	15					FALSE							
617002	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20307	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	17					FALSE							
617003	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	16					FALSE							
618280	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89973	-75.20307	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	12					FALSE							
618281	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	16					FALSE							
618282	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20307	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	20					FALSE							
618283	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89973	-75.20305	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	14					FALSE							
618284	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20305	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	27					FALSE							
618285	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA NAVAL BASE	19145	6/25/2008	WELL ABANDONMENT	39.89972	-75.20306	EICHELBERGERS INC.	US NAVY	ABANDONED	UNUSED	25					FALSE							
629490	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3450 S. LAWRENCE ST.	19148	6/28/2006	WELL ABANDONMENT	39.90833	-75.16361	EICHELBERGERS INC.	WALT WHITMAN TRUCK STOP	ABANDONED	UNUSED	25					FALSE							
629658	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3450 S. LAWRENCE ST.	19148	6/28/2006	WELL ABANDONMENT	39.90833	-75.16361	EICHELBERGERS INC.	WALT WHITMAN TRUCK STOP	ABANDONED	UNUSED	25					FALSE							
629659	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3450 S. LAWRENCE ST.	19148	6/28/2006	WELL ABANDONMENT	39.90833	-75.16361	EICHELBERGERS INC.	WALT WHITMAN TRUCK STOP	ABANDONED	UNUSED	53					FALSE							
629660	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3450 S. LAWRENCE ST.	19148	6/28/2006	WELL ABANDONMENT	39.90833	-75.16361	EICHELBERGERS INC.	WALT WHITMAN TRUCK STOP	ABANDONED	UNUSED	25					FALSE							
635716	PHILADELPHIA	PHILADELPHIA		2601 PENROSE AVE.		2/6/2003	NEW WELL	39.90778	-75.20278	EICHELBERGERS INC.	SUNOCO	OBSERVATION	UNUSED	30	0	5	4		TRUE							
636002	PHILADELPHIA	PHILADELPHIA		2601 PENROSE AVE.		2/6/2003	NEW WELL	39.90778	-75.20278	EICHELBERGERS INC.	SUNOCO	OBSERVATION	UNUSED	30	0	5	4		TRUE							
636003	PHILADELPHIA	PHILADELPHIA		2601 PENROSE AVE.		2/6/2003	NEW WELL	39.90778	-75.20278	EICHELBERGERS INC.	SUNOCO	OBSERVATION	UNUSED	30	0	5	4		TRUE							
636551	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14					FALSE							
636552	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	12					FALSE							
636553	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	12					FALSE							
636554	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14					FALSE							
636555	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
636556	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14.5					FALSE							
636557	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
636561	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	12					FALSE							
636562	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	12					FALSE							
636563	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
636623	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	12					FALSE							
636624	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14					FALSE							
636625	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
637187	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14					FALSE							
637188	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	12					FALSE							
637189	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	16					FALSE							
637190	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
637191	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
637192	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14					FALSE							
637193	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	14					FALSE							
637194	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	15					FALSE							
637212	PHILADELPHIA	PHILADELPHIA		3400 S. CHRISTOPHER COLUMBUS RD	19148	7/7/2005	WELL ABANDONMENT	39.90722	-75.15861	EICHELBERGERS INC.	CSXT	ABANDONED	UNUSED	11					FALSE							
640074	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			2/24/2016	NEW WELL	39.90912	-75.19723	PARRATT-WOLFF INC	Evergreen	MONITORING	OTHER	132	0	115	4		FALSE							

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Table 3-3: Data for Wells within 1 Mile of Transferred Areas
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PAWell ID	County	Municipality	Quad Name	Well Address	Well Zip Code	Date Drilled	Type Of Activity	LatitudeDD	LongitudeDD	Driller	Original Owner	Well Use	Water Use	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Water Level After Yield Test (ft)	Length Of Test (min)	Yield Measurement Method	Saltwater Zone (ft)	Formation Name
640444	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3450 S 26th St	19145	2/8/2016	NEW WELL	39.90918	-75.19379	PARRATT-WOLFF INC	Evergreen	MONITORING	OTHER	96	0	81	4		FALSE							
640467	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90262	-75.20273	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641545	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90024	-75.20028	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	11					FALSE							
641546	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90024	-75.20027	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641547	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90024	-75.20027	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	15					FALSE							
641548	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90024	-75.20026	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	14					FALSE							
641549	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90024	-75.20025	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641550	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90227	-75.20244	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	31					FALSE							
641551	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90267	-75.20259	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641552	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90267	-75.2026	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	16					FALSE							
641553	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90239	-75.20001	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	13					FALSE							
641555	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90244	-75.2024	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641608	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90021	-75.20027	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	11					FALSE							
641609	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.9002	-75.20027	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	29					FALSE							
641615	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90024	-75.20027	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	15					FALSE							
641616	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.9022	-75.20266	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641617	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90256	-75.20252	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641618	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90257	-75.20232	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641619	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90257	-75.20232	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	12					FALSE							
641620	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90267	-75.20254	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	16					FALSE							
641622	PHILADELPHIA	PHILADELPHIA		6301 Passyunk Ave	19153	12/18/2014	WELL ABANDONMENT	39.90231	-75.20244	ALLIED WELL DRILLING	121 Point Breeze Terminal	ABANDONED	OTHER	14					FALSE							
650469	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	Pattison Avenue and S 20th Street	19145	4/6/2017	NEW WELL	39.90686	-75.1852	EICHELBERGERS INC.	USACE	TEST	UNUSED	120					TRUE	2	14.86		30	VOLUMETRIC WATCH & BUCKET		
650855	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	S 20th and Hartranft Streets	19145	4/21/2017	NEW WELL	39.90863	-75.18284	EICHELBERGERS INC.	USACE	TEST	UNUSED	120					TRUE	2	16.32		30	VOLUMETRIC WATCH & BUCKET		
656545	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 11TH ST		9/19/2002	NEW WELL	39.90686	-75.16911	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	WITHDRAWAL	MONITORING	25					TRUE	2			45			
656546	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 11TH ST		9/11/2002	NEW WELL	39.90508	-75.16885	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	50					TRUE	2	33		45			
656547	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 11TH ST		9/11/2002	NEW WELL	39.90508	-75.16885	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	20					TRUE	2	13		45			
656548	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 11TH ST		9/16/2002	NEW WELL	39.90553	-75.17101	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	25					TRUE	2	22		45			
656549	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 7TH ST		9/18/2002	NEW WELL	39.90406	-75.16245	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	WITHDRAWAL	MONITORING	20					TRUE	2	10		45			
656550	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 7TH ST		9/17/2002	NEW WELL	39.90508	-75.16242	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	20					TRUE	2	12		45			
656551	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 7TH ST		9/17/2002	NEW WELL	39.90561	-75.1623	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	49					TRUE	2	30		45			
656552	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 7TH ST		9/17/2002	NEW WELL	39.90545	-75.16235	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	20					TRUE	2	12		45			
656553	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 7TH ST		9/16/2002	NEW WELL	39.90581	-75.16301	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	WITHDRAWAL	MONITORING	20					TRUE	2	15.5		45			
656554	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PHILLIES DRIVE and BROAD ST		9/12/2002	NEW WELL	39.90859	-75.17328	EAST COAST DRILLING INC	PHILLIES STADIUM AREA	WITHDRAWAL	MONITORING	27					TRUE	2	0		45			
656555	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PHILLIES DRIVE and BROAD ST		9/10/2002	NEW WELL	39.90769	-75.17352	EAST COAST DRILLING INC	PHILLIES STADIUM VICINITY	WITHDRAWAL	MONITORING	45					TRUE	2	27		45			
656557	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	S OF PACKER AVE		9/6/2002	NEW WELL	39.90856	-75.16809	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	WITHDRAWAL	MONITORING	20					TRUE	2	14.9		45			
656558	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR PATTISON AVE and 7TH ST		9/18/2002	NEW WELL	39.90406	-75.16245	EAST COAST DRILLING INC	PHILLIES STADIUM PARKING LOT	MONITORING	OTHER	50					TRUE	2	30.6		45			
658620	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1536 Intrepid Ave	19112	11/15/2015	NEW WELL	39.89348	-75.17837	EAST COAST DRILLING INC	Naval Yard	MONITORING	OTHER	13	0	3	2		TRUE	0.5	4		60	BAILER		
658621	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1528 Intrepid Ave	19112	12/1/2015	NEW WELL	39.89373	-75.17824	EAST COAST DRILLING INC	Philadelphia	MONITORING	OTHER	13	0	3	2		TRUE	0.5	4		60	BAILER		
658647	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1524 Intrepid Ave	19112	12/1/2015	NEW WELL	39.89364	-75.17818	EAST COAST DRILLING INC	Naval Shipyard	MONITORING	OTHER	13	0	3	2		TRUE	0.5	4		60	BAILER		
658681	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	4807 S 16th St	19112	11/15/2015	NEW WELL	39.89274	-75.17871	EAST COAST DRILLING INC	Naval Yard	MONITORING	OTHER	13	0	3	2		TRUE	0.05	4		60	BAILER		
658717	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	7TH ST AND PATTISON AVE.		6/1/1990	NEW WELL	39.90534	-75.16133	ALEXANDER MACPHEE--CVM INDUSTRIES	FMR CITY SANITATION DEPT	WITHDRAWAL	MONITORING	16					TRUE							
658718	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	7TH ST AND PATTISON AVE		6/1/1990	NEW WELL	39.90522	-75.16202	ALEXANDER MACPHEE--CVM INDUSTRIES	FMR CITY SANITATION DEPT	MONITORING	OTHER	11					TRUE	5	7	11	15			
667576	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/18/2018	NEW WELL	39.9097	-75.20368	PARRATT-WOLFF INC	Philadelphia Energy Solutions	MONITORING	OTHER	22.5	0	8	4		FALSE							
667599	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA			9/19/2018	NEW WELL	39.91048	-75.2053	PARRATT-WOLFF INC	Philadelphia Energy Solutions	MONITORING	OTHER	27	0	17	4		FALSE							
668671	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3518 Schuylkill Ave		9/28/2018	NEW WELL	39.91118	-75.20516	PARRATT-WOLFF INC	Philadelphia Energy Solutions	MONITORING	OTHER	17	0	7	2		FALSE							
668750	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3542 Schuylkill Ave	19145	9/28/2018	NEW WELL	39.91078	-75.20545	PARRATT-WOLFF INC	Philadelphia Energy Solutions	MONITORING	OTHER	18	0	8	2		FALSE							
671611	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	200 Pattison Ave.	19148	10/29/2018	NEW WELL	39.9022	-75.15473	AMERIDRILL INC.	Bloomfield Holdings Inc.	MONITORING		25	0	5	2		TRUE							
671743	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	200 Pattison Ave.	19148	10/29/2018	NEW WELL	39.90217	-75.1546	AMERIDRILL INC.	Bloomfield Holdings Inc.	MONITORING		20	0	5	2		TRUE							
671744	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	200 Pattison Ave.	19148	10/30/2018	NEW WELL	39.90181	-75.15481	AMERIDRILL INC.	Bloomfield Holdings Inc.	MONITORING		20	0	5	2		TRUE							
672963	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3700 S 26TH ST PHILA		7/2/2004	NEW WELL	39.9031	-75.19455	B. L. MYERS BROS OF MDLLC	DANBRO L.P. - DANBRO DISTRIBUTORS	MONITORING	OTHER	18					TRUE							
673499	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	700 Pattison Avenue	19148	1/10/2019	NEW WELL	39.90299	-75.16282	ODYSSEY ENVIRONMENTAL SERVICES INC.	Philadelphia Authority for Industrial Development	MONITORING		20	0	5	2		FALSE							
673500	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	700 Pattison Avenue	19148	1/10/2019	NEW WELL	39.90327	-75.16457	ODYSSEY ENVIRONMENTAL SERVICES INC.	Philadelphia Authority for Industrial Development	MONITORING		20	0	5	2		FALSE							
673520	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	700 Pattison Avenue	19148	1/9/2019	NEW WELL	39.90025	-75.16521	ODYSSEY ENVIRONMENTAL SERVICES INC.	Philadelphia Authority for Industrial Development	MONITORING		25	0	5	2		FALSE							
673563	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	700 Pattison Avenue	19148	1/9/2019	NEW WELL	39.90067	-75.16379	ODYSSEY ENVIRONMENTAL SERVICES INC.	Philadelphia Authority for Industrial Development	MONITORING		25	0	5	2		FALSE							
673892	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3627 S 3rd St	19148	1/2/2019	NEW WELL	39.90235	-75.15476	AMERIDRILL INC.	Bloomfield Holdings Inc.	MONITORING		20	0	5	2		TRUE							
676203	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	3rd Street & Pattison Ave	19148	4/25/2019	NEW WELL	39.9024	-75.15501	AMERIDRILL INC.	Bloomfield Holdings Inc.	MONITORING		20	0	5	2		TRUE							
680201	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	200 Pattison Ave.	19148	8/30/2019	NEW WELL	39.90225	-75.15472	AMERIDRILL INC.	Ivy Pattison Property LLC	MONITORING		13.5	0	4	2		TRUE							
681031	PHILADELPHIA	PHILADELPHIA				10/29/2019	NEW WELL	39.90231	-75.21077	PARRATT-WOLFF INC	PES	MONITORING		20	0	5	6		FALSE							
681036	PHILADELPHIA	PHILADELPHIA				10/30/2019	NEW WELL	39.90232	-75.21051	PARRATT-WOLFF INC	PES	MONITORING		15	0	13	2		FALSE							
681061	PHILADELPHIA	PHILADELPHIA				10/30/2019	NEW WELL	39.90254	-75.21081	PARRATT-WOLFF INC	PES	MONITORING		10	0	5	4		FALSE							

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Table 3-3: Data for Wells within 1 Mile of Transferred Areas
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PAWell ID	County	Municipality	Quad Name	Well Address	Well Zip Code	Date Drilled	Type Of Activity	Latitude DD	Longitude DD	Driller	Original Owner	Well Use	Water Use	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Water Level After Yield Test (ft)	Length Of Test (min)	Yield Measurement Method	Saltwater Zone (ft)	Formation Name
682860	PHILADELPHIA	PHILADELPHIA				12/11/2019	NEW WELL	39.90526	-75.21426	PARRATT-WOLFF INC	Evergreen	MONITORING		38	0	30	4		FALSE							
682903	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S DELAWARE AVE		5/21/1998	NEW WELL	39.90477	-75.13933	B. L. MYERS BROS OF MDLLC	PACKER MARINE TERMINAL	MONITORING	OTHER						FALSE							
682904	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S DELAWARE AVE		5/21/1998	NEW WELL	39.90477	-75.13933	B. L. MYERS BROS OF MDLLC	PACKER MARINE TERMINAL	WITHDRAWAL	MONITORING	14					TRUE		7					
682905	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S DELAWARE AVE		5/21/1998	NEW WELL	39.90477	-75.13933	B. L. MYERS BROS OF MDLLC	PACKER MARINE TERMINAL	WITHDRAWAL	MONITORING	14					TRUE		7					
682906	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF S DELAWARE AVE		5/21/1998	NEW WELL	39.90477	-75.13933	B. L. MYERS BROS OF MDLLC	PACKER MARINE TERMINAL	MONITORING	OTHER	13					TRUE		7					
683066	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR TAYLOR TERRACE		2/26/1999	NEW WELL	39.91311	-75.18901	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	30					FALSE	1.5	22	26	60	VOLUMETRIC WATCH & BUCKET		
683067	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR TAYLOR TERRACE		2/19/1999	NEW WELL	39.91441	-75.19002	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	28					TRUE	1.5	24	26	60	VOLUMETRIC WATCH & BUCKET		
683068	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	BETWEEN FMR 23RD AND BEMBERGER TERRACES		2/22/1999	NEW WELL	39.91367	-75.18606	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	30					TRUE	2	12.5	14	75	VOLUMETRIC WATCH & BUCKET		
683069	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR BEMBERGER TERRACE		2/22/1999	NEW WELL	39.91359	-75.18533	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	30					TRUE	2	12.5	14	75	VOLUMETRIC WATCH & BUCKET		
683070	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	BETWEEN PENROSE FERRY AND S 22ND ST		2/23/1999	NEW WELL	39.91137	-75.18618	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTH	MONITORING	OTHER	25					TRUE	2	11	12	75	VOLUMETRIC WATCH & BUCKET		
683071	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	BETWEEN PENROSE FERRY AND S 22ND ST		2/26/1999	NEW WELL	39.91137	-75.18618	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	29					TRUE	1	21	26	75	VOLUMETRIC WATCH & BUCKET		
683072	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR TAYLOR TERRACE		2/25/1999	NEW WELL	39.91441	-75.19002	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	20					TRUE	0.5	18.5	20	60	VOLUMETRIC WATCH & BUCKET		
683073	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR HULSEMAN TERRACE		2/24/1999	NEW WELL	39.91125	-75.18951	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	28					TRUE	2	12	14	75	VOLUMETRIC WATCH & BUCKET		
683074	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	NEAR CNR FMR DEWITT ST AND S 20TH		3/3/1999	NEW WELL	39.9129	-75.18203	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	20					TRUE	2	11.5	13.1	60	VOLUMETRIC WATCH & BUCKET		
683075	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	ON FMR BASH ST - NO LONGER EXISTS		2/16/1999	NEW WELL	39.91218	-75.18221	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTH	MONITORING	OTHER	20					TRUE	1.75	11.5	12.2	70	VOLUMETRIC WATCH & BUCKET		
683076	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR BASH ST - STREET NO LONGER EXISTS		2/16/1999	NEW WELL	39.91218	-75.18221	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	30					TRUE	2	14.5	18	80	VOLUMETRIC WATCH & BUCKET		
683077	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	OFF FMR BASH ST - STREET NO LONGER EXISTS		2/19/1999	NEW WELL	39.91218	-75.18221	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	27					TRUE	2	11.5	14.5	75	VOLUMETRIC WATCH & BUCKET		
683078	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	BETWEEN FMR BASH AND ROGERS STS - STS NO LONGER EXIST		2/24/1999	NEW WELL	39.91218	-75.18221	SGS NORTH AMERICA INC.	FMR PASSYUNK HOMES - PHILA HOUSING AUTHORITY	MONITORING	OTHER	24					TRUE	1.5	14.5	16.8	60	VOLUMETRIC WATCH & BUCKET		
683180	PHILADELPHIA	PHILADELPHIA				1/14/2020	NEW WELL	39.90897	-75.20559	PARRATT-WOLFF INC	PES	MONITORING		30	0	15	4		FALSE							
683219	PHILADELPHIA	PHILADELPHIA				1/7/2020	NEW WELL	39.90807	-75.20354	PARRATT-WOLFF INC	PES	MONITORING		20	0	10	4		FALSE							
683224	PHILADELPHIA	PHILADELPHIA				1/8/2020	NEW WELL	39.91034	-75.20476	PARRATT-WOLFF INC	PES	MONITORING		23	0	13	4		FALSE							
683229	PHILADELPHIA	PHILADELPHIA				1/7/2020	NEW WELL	39.9078	-75.20426	PARRATT-WOLFF INC	PES	MONITORING		23	0	10	4		FALSE							
683232	PHILADELPHIA	PHILADELPHIA				1/9/2020	NEW WELL	39.9103	-75.20546	PARRATT-WOLFF INC	PES	MONITORING		26.5	0	14	4		FALSE							
683252	PHILADELPHIA	PHILADELPHIA				1/9/2020	NEW WELL	39.91069	-75.2042	PARRATT-WOLFF INC	PES	MONITORING		24.5	0	14	4		FALSE							
683267	PHILADELPHIA	PHILADELPHIA				1/6/2020	NEW WELL	39.91036	-75.20424	PARRATT-WOLFF INC	PES	MONITORING		20	0	10	4		FALSE							
686335	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/21/2020	NEW WELL	39.9017	-75.1853	AMERIDRILL INC.	City of Philadelphia	MONITORING		14	0	4	2		TRUE							
686350	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/20/2020	NEW WELL	39.90089	-75.18802	AMERIDRILL INC.	City of Philadelphia	MONITORING		15	0	5	2		TRUE							
686373	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/18/2020	NEW WELL	39.89755	-75.18794	AMERIDRILL INC.	City of Philadelphia	MONITORING		17	0	7	2		TRUE							
686375	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/19/2020	NEW WELL	39.89773	-75.19037	AMERIDRILL INC.	City of Philadelphia	MONITORING		17	0	7	2		TRUE							
686405	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/20/2020	NEW WELL	39.90096	-75.18701	AMERIDRILL INC.	City of Philadelphia	MONITORING		14	0	4	2		TRUE							
686408	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/19/2020	NEW WELL	39.89962	-75.19017	AMERIDRILL INC.	City of Philadelphia	MONITORING		16	0	6	2		TRUE							
686423	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/21/2020	NEW WELL	39.9009	-75.18558	AMERIDRILL INC.	City of Philadelphia	MONITORING		14	0	4	2		TRUE							
686435	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/20/2020	NEW WELL	39.90223	-75.18672	AMERIDRILL INC.	City of Philadelphia	MONITORING		13	0	3	2		TRUE							
686436	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/19/2020	NEW WELL	39.89971	-75.18608	AMERIDRILL INC.	City of Philadelphia	MONITORING		13	0	3	2		TRUE							
686437	PHILADELPHIA	PHILADELPHIA	PHILADELPHIA	1500 Pattison Ave.	19145	5/18/2020	NEW WELL	39.89902	-75.18566	AMERIDRILL INC.	City of Philadelphia	MONITORING		13	0	3	2		TRUE							
687657	PHILADELPHIA	PHILADELPHIA				6/16/2020	NEW WELL	39.90471	-75.19722	PARRATT-WOLFF INC	PES	MONITORING		27	0	17	2		FALSE							
687658	PHILADELPHIA	PHILADELPHIA				7/13/2020	NEW WELL	39.9056	-75.19478	PARRATT-WOLFF INC	PES	MONITORING		46	0	46	2		FALSE							
687676	PHILADELPHIA	PHILADELPHIA				7/8/2020	NEW WELL	39.90602	-75.19411	PARRATT-WOLFF INC	PES	MONITORING		48	0	38	2		FALSE							
687691	PHILADELPHIA	PHILADELPHIA				6/16/2020	NEW WELL	39.90739	-75.194	PARRATT-WOLFF INC	PES	MONITORING		46	0	36	2		FALSE							
687760	PHILADELPHIA	PHILADELPHIA				6/25/2020	NEW WELL	39.90523	-75.1958	PARRATT-WOLFF INC	PES	MONITORING		46	0	36	2		FALSE							
687779	PHILADELPHIA	PHILADELPHIA				7/1/2020	NEW WELL	39.90653	-75.19399	PARRATT-WOLFF INC	PES	MONITORING		48	0	38	2		FALSE							
687925	PHILADELPHIA	PHILADELPHIA				8/10/2000	NEW WELL	39.9046	-75.19443	PARRATT-WOLFF INC	PES	MONITORING		26	0	16	2		FALSE							
687976	PHILADELPHIA	PHILADELPHIA				8/12/2020	NEW WELL	39.90461	-75.19443	PARRATT-WOLFF INC	PES	MONITORING		85	0	70	2		FALSE							
687979	PHILADELPHIA	PHILADELPHIA				7/17/2020	NEW WELL	39.90551	-75.19532	PARRATT-WOLFF INC	PES	MONITORING		49	0	39	2		FALSE							
688006	PHILADELPHIA	PHILADELPHIA				7/27/2020	NEW WELL	39.90512	-75.19591	PARRATT-WOLFF INC	PES	MONITORING		44	0	34	2		FALSE							

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Table 4-1: Potential PFAS Areas Recommendations - Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
Former Officers' Club	Outdoor Area Adjacent to Former Officers' Club at Main Gate	NA	Zone III*	1980s (activities being investigated occurred during this time period)	Building 46 was formerly used as the Officer's Club near the main gate, a recreational gathering place for workers and officers of the yard. Building was demolished; footprint is partly under a parking lot associated with a restaurant and partly under the putting green within Crescent Park.	Site personnel reported in 2018 interviews that foam was commonly released at this site for recreational purposes during the 1980s.	Proceed to SI
C-85	Chrome-Plating Waste Accumulation Area Outside Bldg. 16	SWMU	Zone V*	Unknown - 1996	SWMU C-85 (Building 16 Chrome-Plating Waste Accumulation Area) was an accumulation area located outside the southwest side of Building 16 (Figure 4-4). The unit was approximately 40 feet by 25 feet with an asphalt base. A fence surrounded three sides of the area, and the fourth side was bounded by the building wall. The unit was used to temporarily accumulate waste in 55-gallon drums from chrome plating baths located inside the building. The removed chrome plating baths were periodically replaced with new plating baths. The complete operational period is unknown; however, the accumulation area unit was no longer being used as of 1996 (EA, 1998). Listed as no further action (Navy, 1994).	PFAS were sometimes used during the chromium electroplating process as a surfactant in chromic acid baths.	Proceed to SI
AOC-F	Bldg. 41 Electroplating Shop Spill Area	AOC	Zone V*	Unknown - 1994	The electroplating shop stored and used a variety of extremely hazardous chemicals for its plating operations in Building 41. These chemicals include hydrochloric acid, sulfuric acid, chromic acid, and plastic coating compound. Lockers at the south end of the building contained silver plating solution, etching solution, copper plating solution, and nickel plating solution. SWMU# AOC-F suspected contaminants: Acids and heavy metals. Four hazardous material accumulation storage sheds. The units and surrounding area were cleaned and a closeout report issued by the Navy in March 2000. No further action was selected remedy (EPA, 2000).	Evidence was found of chromium plating activities at Bldg. 41. According to site personnel interviews, the base personnel also would utilize the chrome plating operation for maintenance on personal vehicles. PFAS were sometimes used during the chromium electroplating process as a surfactant in chromic acid baths.	Proceed to SI
Fire Fighting Training Unit Area							
IR Site 13	Fire Fighting Training Unit (FFTU)	IR	Zone I*	1944 - 1995	Fire fighting training activities occurred regularly at the former FFTU from 1944 through September 1995. The training activities included distribution and ignition of fuel (diesel, gasoline, and fuel oil) with subsequent extinguishing of the created fires. The materials used to extinguish the fires flowed into drains located near the simulation structures and then to oil-water separators. The water was discharged to the sanitary sewer, and waste oil was collected and subsequently, managed by Navy. An underground fuel distribution system was in place at the site. Historical site figures identify a foam tank located at Site 13; however, it is unknown whether the foam contents were PFAS-containing AFFF or if AFFF was used at the site (EA, 1999). Historically, three underground storage tanks (USTs) supplied diesel fuel, gasoline, and fuel oil to burn stations on the northern end of the fire field. As a result of failed tank-tightness tests, two of the three USTs (A3-002 and A3-003) were removed in 1990. A third UST (A3-001) was removed from the northern end of the site in 1995 (EA, 1999).	Although it is unknown if PFAS-containing AFFF was used as part of the fire fighting training activities at Site 13, AFFF was reported to be found at the installation during its operational period. In addition, groundwater samples collected from five temporary wells installed in 2019 at Site 13 exhibited PFOA and PFOS concentrations above their calculated screening levels.	Proceed to SI
C-17	Fire Fighting School (A)	SWMU	Zone I*	1990-1995	Fire Fighting School (A): Located within Site 13 - Fire Fighting Training Unit. The 1999 BRAC Cleanup Plan lists suspected wastes or contaminants as spent oxygen breathing apparatus canisters. Recommended for no further action in Resource Conservation and Recovery Act (RCRA) Work Plan (EA, 1999).	*See IR Site 13 - any potential PFAS release will be addressed with Site 13	*See IR Site 13
C-18	Fire Fighting School (B)	SWMU	Zone I*	Unknown - 1995	Fire Fighting School (B): Located within Site 13 - Fire Fighting Training Unit. The 1999 BRAC Cleanup Plan lists suspected wastes or contaminants as spent oxygen breathing apparatus canisters and fire training wastes. Recommended for no further action in RCRA Work Plan (EA, 1999).	*See IR Site 13 - any potential PFAS release will be addressed with Site 13	*See IR Site 13
C-19	Fire Fighting School (C)	SWMU	Zone I*	Unknown - 1995	Fire Fighting School (C): Located within Site 13 - Fire Fighting Training Unit. The 1999 BRAC Cleanup Plan lists suspected wastes or contaminants as waste paint. Recommended for no further action in RCRA Work Plan (EA, 1999).	*See IR Site 13 - any potential PFAS release will be addressed with Site 13	*See IR Site 13
0-3	Fire Fighting School Oil/ Water Separator	SWMU	Zone I*	1944 - 1995	Fire Fighting School Oil/ Water Separator. Fire fighting training activities occurred regularly from 1944 through September 1995. The training activities included distribution and ignition of fuel (diesel, gasoline, and fuel oil) with subsequent extinguishing of the created fires. The materials used to extinguish the fires flowed into drains located near the simulation structures and then to oil-water separators. The water was discharged to the sanitary sewer, and waste oil was collected and subsequently, managed by Navy (Tetra Tech, 2020).	*See IR Site 13 - any potential PFAS release will be addressed with Site 13	*See IR Site 13
AOC-G	Fire Fighting School UST Removal Area #1	AOC	Zone I*	1944 - 1990	Fire Fighting School UST Removal Area #1 (Tank A3-002). Historically, this UST supplied diesel fuel, gasoline, and fuel oil to burn stations on the northern end of the fire field. As a result of failed tank-tightness tests, A3-002 was removed in 1990 (Tetra Tech, 2020). No further action (EPA, 2000).	*See IR Site 13 - any potential PFAS release will be addressed with Site 13	*See IR Site 13
AOC-H	Fire Fighting School UST Removal Area #2	AOC	Zone I*	1944 - 1990	Fire Fighting School UST Removal Area #2 (Tank A3-003). Historically, this UST supplied diesel fuel, gasoline, and fuel oil to burn stations on the northern end of the fire field. As a result of failed tank-tightness tests, A3-003 was removed in 1990 (Tetra Tech, 2020). No further action (EPA, 2000).	*See IR Site 13 - any potential PFAS release will be addressed with Site 13	*See IR Site 13

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Table 4-1: Potential PFAS Areas Recommendations - Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation

References:
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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
Girard Point Management Area							
IR Sites 3, 4, & 5	Girard Point Management Area: Site 3 - Transformer Storage Area Building 825, Site 4 - Girard Point Landfill, Site 5 - Girard Point Blasting Grit Area	IR	Zone I*	Site 3: 1970s- early 1980s Sites 4 & 5: 1940s - 1970s	Site 3 (Transformer Storage Area Building 825), Site 4 (Girard Point Landfill), and Site 5 (Girard Point Blasting Grit Area) - Due to the close proximity of these IR sites, this area was managed and remediated together and is known as the Girard Point Management Area (GPMA). This area was previously used for transfer, incineration, and landfilling of shipyard solid waste from the 1940s to at least the 1970s. Four early removal actions were completed, along with the removal of two underground storage tanks (Navy, 1999b). Site 3 - was used extensively during the 1970s and early 1980s to store out-of-service transformers. Transformers containing both PCB and mineral oil were stored at this 1/2-acre site in the fenced storage yard and along the outside of the northern fence line on wooded pallets and rails. Site 4 - comprises a landfill area of approximately 6 acres. Site history and aerial photography reviews indicated waste disposal activities occurred between 1940 and 1970. Solid wastes that could not be incinerated were placed in IR Site 4. Site 5 - is a landfill that covers approximately 5 acres and contains mostly waste blasting grit, along with construction debris, miscellaneous debris that was not incinerated at Building 668, and incinerator ash. IR Site 5 shares a similar landfilling history with IR Site 4 in that filling operations occurred from the early 1940s to 1970. Fill material at IR Site 5 was found to range in depth from 7 to 14 feet (ft) (EA, 1997).	The character of waste at IR Site 3 is not known to contain PFAS. The years of operation at IR Sites 4 and 5 are prior to widespread AFFF usage, making potential PFAS release unlikely.	No Further PFAS Evaluation
C-16	Girard Point Management Area: Former Incinerator Staging Area	SWMU	Zone I*	1941 - 1970	The incinerator is located in the northwestern portion of the Girard Point Landfill. Non-hazardous solid waste materials such as wood, paper, and garbage, were disposed of in the incinerator. Materials for incineration were temporarily staged here. Incinerator ash was disposed of as fill material at various locations on the site (Envirodyne, 1983). Recommended for NFA in RCRA WP (EA, 1999b).	The waste managed at this site is not suspected to be PFAS-containing. Years of operation are prior to widespread AFFF usage making potential PFAS release unlikely.	No Further PFAS Evaluation
M-8	Girard Point Incinerator	SWMU	Zone I*	1941 - 1970	The incinerator is located in the northwestern portion of former Navy Shipyard Philadelphia at Girard Point. Non-hazardous solid waste materials such as wood, paper, and garbage, were disposed of in the incinerator. Incinerator ash was disposed of as fill material at various locations on the site (Envirodyne, 1983). The incinerator was dismantled in early 2000 and a closeout report issued by the Navy. NFA was determined (EPA, 2000).	Character of incinerated waste materials are not known to contain PFAS; in addition, the years of operation are prior to widespread AFFF usage making potential PFAS release unlikely.	No Further PFAS Evaluation
WP-2	Girard Point Blasting Grit Waste Piles	SWMU	Zone I*	1990 - 1995	Girard Point Blasting Grit Waste Piles - Former 7-acre parking lot used for temporary storage of spent blasting grit between 1990 and 1995 (EA, 1997).	Character of waste is not known to be PFAS-containing. No record of use or storage of AFFF at the site.	No Further PFAS Evaluation
WP-4	Temporary IR Program Site 3 Waste Pile	SWMU/IR	Zone I*	1970-1971	Temporary IR Program Site 3 Waste Pile. WP-4 was in operation from 1970-1971 to store out-of-service transformers at the Girard Point Management Area awaiting reuse or disposal. WP-4 was the waste soil pile associated with the M-4 storage area. Stockpiled transformer and PCB contaminated soils were removed from the area between 1981 and 1985. EPA approved NFA in 2000 (EPA, 2000).	Character of waste is not known to be PFAS-containing. In addition, years of operation are prior to widespread AFFF use, making potential PFAS release unlikely.	No Further PFAS Evaluation
M-24, M-25, M-34	M-24 - DRMO Reclaimed Items Yard M-25 - DRMO Scrap Yard M-34 - Bldg. 647 Lot	SWMU	Zone I*	1970 - 1996	The DRMO Reclaimed Items Yard (M-24), the DRMO Scrap Yard (M-25), and the storage area (M-34) were operated from the 1970s to the early 1990s for the management of waste oils, spent solvents, unused paints, and used batteries. Salvageable scrap metals and materials were collected at the yards/area. Results of surface soil sampling in the 1997 RCRA Stabilization Report identified elevated levels of metals in soil. A removal action was completed and the closeout report was issued by Navy in 2000. NFA was approved remedy (EPA, 2000).	Because AFFF was not stored at the DRMO storage areas and the paint used at the former Navy installation is reportedly not anti-fouling paint, PFAS release is unlikely.	No Further PFAS Evaluation
Former Mustin Airfield	Former Naval Station Mustin Airfield	NA	Zone IV	1926–1963	The Former Naval Station Mustin Airfield was established in 1926 and was used for the construction and testing of aircrafts. It consisted of three asphalt runways in a "Y" shape and four large hangars. In 1945, the Naval Aircraft Factory stopped building aircraft, but continued as a testing ground until 1963 when Mustin Field closed due to it's close proximity to Philadelphia International Airport.	No crashes or fires were reported or identified at the former airfield or hangars. According to site personnel, there were no AFFF-containing fire suppression systems within the hangars or buildings at the former airfield. Years of operation (1926-1963) are prior to widespread AFFF usage (i.e., after late 1960s).	No Further PFAS Evaluation

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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
C-78	Pier 1	SWMU	Zone III*	1900s - 1996	Pier 1 was to undergo interim corrective procedures to prevent further environmental degradation (Navy, 1994). Contaminants are the same as Dry Dock #3. The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as oils, paints, solvents, sodium nitrate, citric acid, fire-retardant chemical, and oily wastewater. Pier 1 is listed as servicing yard craft and fire boats in the 1989 Master Plan (EA, 1999b).	AFFF equipment was reportedly handled at this site. Based on interviews with site personnel, the AFFF was normally taken off of the ships during equipment maintenance/servicing. There is no historical documentation that spills or releases of AFFF occurred at the pier. If a release did occur from the storage of AFFF containers at Pier 1, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-73	Dry Dock #1	SWMU	Zone V*	1900s - 1996	The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as petroleum-based oil, synthetic hydraulic fluid, Freon 113, oil-contaminated debris, fire-retardant chemical, sodium nitrate, oily wastewater, paints, solvents, citric acid. Interim corrective procedures were to be undertaken to prevent environmental degradation or contaminant migration (EA, 1999b). Surficial cleaning completed; no further action (RCRA) (EA, 1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, the AFFF was normally taken off of ships during equipment maintenance/servicing. There is no historical documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Dry Dock #1, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-75	Dry Dock #3	SWMU	Zone V*	1900s - 2000	The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as wastes from ship maintenance operations. Interim corrective procedures were to be undertaken to prevent environmental degradation or contaminant migration (EA, 1999b). No further action (EA, 1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, the AFFF was normally taken off of ships during equipment maintenance/servicing. There is no historical documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Dry Dock #3, it would have washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-79	Pier 2	SWMU	Zone V*	1900s - 1996	The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as oils, paints, solvents, sodium nitrate, citric acid, fire-retardant chemical, and oily wastewater. EBS indicates that interim corrective action was to be undertaken to prevent environmental degradation or contaminant migration (Navy, 1994). Surficial cleaning completed; no further action (RCRA) (EA, 1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, this AFFF was most likely taken off of ships during servicing. There is no documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Pier 2, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-81	Pier 5	SWMU	Zone V*	1900s - 1996	The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as oils, paints, solvents, sodium nitrate, citric acid, fire-retardant chemical, and oily wastewater. EBS indicates that interim corrective action was to be undertaken to prevent environmental degradation or contaminant migration (Navy, 1994). Surficial cleaning completed; no further action (RCRA) (EA,1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, the AFFF was most likely taken off of ships during servicing. There is no historical documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Pier 5, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation

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Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
C-82	Pier 6	SWMU	Zone V*	1900s - 1995	The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as oils, paints, solvents, sodium nitrate, citric acid, fire-retardant chemical, and oily wastewater. EBS indicates that interim corrective action was to be undertaken to prevent environmental degradation or contaminant migration (Navy, 1994). Surficial cleaning completed; no further action completed (RCRA) (EA, 1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, this AFFF was normally taken off of ships during equipment maintenance/servicing. There is no historical documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Pier 6, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-83	Pier 6A	SWMU	Zone V*	1900s - 1996	The 1999 BRAC Cleanup Plan listed suspected waste or contaminants as oils, paints, solvents, sodium nitrate, citric acid, fire-retardant chemical, and oily wastewater. EBS lists NFA (Navy, 1994).	AFFF was reportedly handled at this site. Based on interviews with site personnel, this AFFF was normally taken off of ships during equipment maintenance/servicing. There is no documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Pier 6A, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
IR Site 10	Dry Docks 4 and 5 Disposal Area	IR	Zone V*	1920s - 1930s	Dry Docks 4 and 5 Disposal Area - past reports indicated that the areas where Dry Docks 4 and 5 are currently located were used for disposal purposes prior to dry dock construction. Waste was reportedly removed during dry dock construction (Navy, 1999b).	This site's operational period (1920s - 1930s) was before the widespread use of PFAS; therefore, the waste is not likely to contain PFAS.	No Further PFAS Evaluation
IR Site 12	Fuel Farm Area	IR	Zone V*	Between 1966 and 1986 - 1996	Fuel Farm Area - Site 12 was located in the west-central portion of the base, near the confluence of the reserve basin and the Schuylkill River. Over the years, several fuel product spills occurred at this area. The dominant structures at this site were three large aboveground storage tanks containing No. 6 fuel oil. Two tanks (1026 and 1027) had storage capacities of 1.5 million gallons, while Tank 918 had a capacity of 1 million gallons. Smaller capacity (10,000-15,000 gallons) underground storage tanks containing diesel fuel and gasoline were also located at the site, west of Building 739. The two northern-most tanks were excavated and removed in August 1993 while the remaining four tanks were removed in January 1996. Three major spills and several other minor spills occurred in 1979 at the Fuel Farm area. In February 1979, an estimated 75,000 gallons of No. 6 fuel oil were spilled along Bridge Street when an oil line feeding the main plant ruptured. In early March 1979, an oil spill estimated at several thousand gallons occurred near the auxiliary steam plant. On March 10 and 11, 1979, approximately 5,500 gallons of waste oil were released into the diked area surrounding Tank No. 1027. The storm drain that transects the site exits into the Schuylkill River (EA, 1996).	According to site personnel, fuel and oil spills were not controlled with AFFF. No historical documentation or evidence was found of this site being equipped with a AFFF-containing fire suppression system.	No Further PFAS Evaluation
IR Site 15	Vacant Lot, Former Bldg. 599	IR	Zone III*	Unknown - 1986	Site 15 is a vacant lot which was the former site of Building 599. The building housed a maintenance operation until it was demolished in 1986. Soil sampling conducted in 1988 indicated elevated levels of PCB and petroleum hydrocarbons. An RI/FS study was conducted at the site (Navy, 1995).	According to site personnel, fuel and oil spills were not controlled with AFFF. No evidence of PFAS release.	No Further PFAS Evaluation
C-59	Bldg. 897	SWMU	Zone I*	1983 - Unknown	Bldg. 897 - Material handled included waste oils and hydraulic fluid. Recommended for NFA in RCRA WP (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
C-60	Bldg. 896/897 Staging Area	SWMU	Zone I*	1984 - 1995	Bldg. 896/897 Staging Area (Maintenance Storage). Material handled included waste oils, hydraulic fluid, paint wastes, and oily rags (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
C-63	Bldg. 912	SWMU	Zone I*	1984 - Unknown	DRMO Building 912 used primarily for material storage, until the material was no longer needed, in which case it was then labelled as a waste. Lab packs were among the materials handled at this site. Recommended for NFA in RCRA WP (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation

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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
C-64	Bldg. 995	SWMU	Zone I*	1984 - Unknown	DRMO Building 995 used primarily for material storage, until the material was no longer needed, in which case it was then labelled as a waste. Flammable wastes were among the materials handled at this site. Recommended for NFA in RCRA WP (EA, 1999b).	No historical documentation on use of storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
C-65	Bldg. 992	SWMU	Zone I*	1984 - Unknown	DRMO Building 992 used primarily for material storage, until the material was no longer needed, in which case it was then labelled as a waste. Flammable wastes were among the materials handled at this site. Recommended for NFA in RCRA WP (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
M-7	Northwest Parking Lot	SWMU	Zone I*	Between 1942 & 1951 - 1983	Northwest Parking Lot located between the I-95 bridge and Bridge Street in the western portion of the facility facing northwest. Materials handled at this location include: spent solvents, used oil, caustics, waste paint, flammable wastes, PCB, and acids (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
M-26	DRMO Oil Pad	SWMU	Zone I*	1980 - 1990s	M-26/O-11 was a DRMO oil pad (M-26) and O/W separator (O-11). The units were operated from 1980 to the early 1990s and were designed for the collection and containment of waste oil. The effluent from the O/W separator was discharged into the sanitary sewer system and waste oil was shipped off-site for disposal. The RCRA Stabilization Report from 1997 recommended areas for remediation due to elevated lead levels. The oil pad and contaminated soil were removed and a closeout report was issued in 2000. NFA was required (EPA, 2000).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
0-11	DRMO Oil/Water Separator	SWMU	Zone I*	1980 - 1990s	M-26/O-11 was a DRMO oil pad (M-26) and O/W separator (O-11). The units were operated from 1980 to the early 1990s and were designed for the collection and containment of waste oil. The effluent from the O/W separator was discharged into the sanitary sewer system and waste oil was shipped off-site for disposal. The RCRA Stabilization Report from 1997 recommended areas for remediation due to elevated lead levels. The oil pad and contaminated soil were removed and a closeout report was issued in 2000. NFA was required (EPA, 2000).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
R-1	Bldg. 896	SWMU	Zone I*	1984-1996	PW Maintenance Storage was a RCRA regulated spill sump. Material involved in site operations included paint-related wastes, solvents, detergents, hydraulic fluid, and oil waste. (EA, 1999b).	Reportedly, no anti-fouling paint was used within the installation. Character of waste is not known to contain PFAS.	No Further PFAS Evaluation
WP-1	Excavated UST Contaminated Soil Waste Pile	SWMU	Zone I*	1990 - 1996	Excavated UST Contaminated Soil Waste Pile - petroleum hydrocarbons (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use of AFFF at this site.	No Further PFAS Evaluation
M-38	Bldg. 694 UST Removal Site	SWMU	Zone II*	1966 - 1990	Tank No. E10-001 (gasoline UST) was removed in December 1989 (K&D, 1991).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-32	Waste collection area	AOC	Zone II*	1959 - 2000	Waste collection area (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
PNB-33	Tank piping Building 120	AOC	Zone II*	1959 - 2000	Tank piping from Heavy Material Storage of No.2 Fuel Oil adjacent to Building 120 (1983 IAS). Building 120 was the General Warehouse (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
C-25	Bldg. 601	SWMU	Zone III*	1941 - 1989	Metrology & Calibration Lab, Submarine Antenna Lab, Propulsion System Lab, Materials Laboratory, and Ships/Marine Equipment Lab (Navy, 1989). Wastes included waste paints, epoxy, empty paint and spray cans (EA, 1999b).	According to site personnel, no anti-fouling paint was used on site. Character of waste is not known to be PFAS-containing.	No Further PFAS Evaluation
C-28	Bldg. 26	SWMU	Zone III*	1909 - 2000	Communications System Lab, Submarine Antenna, Optical Shop (51). There were four (4) small, flammable material storage lockers located inside the building. The lockers contained paints and adhesives. A hydraulic stand was located in the south end of the building, along with several drums of hydraulic fluid that were temporarily stored (Navy, 1994). NFA in RCRA WP (EA, 1999b).	No known AFFF-containing fire suppression systems were used for the flammable material lockers. Character of stored waste is not known to be PFAS-containing.	No Further PFAS Evaluation

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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
C-72 & M-29	Photo Lab & Bldg. 7 Silver Recovery Units	SWMU	Zone III*	1984 - 1996	Administrative/Photography Lab & Silver Recovery Units - One hazardous waste accumulation site and one aerosol can accumulation site (2nd floor, south) (Navy, 1994). EBS lists the suspected waste or contaminants as aluminum chloride and acetic acid. Recommended NFA (EA, 1999b).	The reported use of silver-containing fixative supports that this was a traditional photo development operation, and not a more specialized process that might include PFAS for fine photo finishing.	No Further PFAS Evaluation
M-11	Bldg. 925 UST Removal Site	SWMU	Zone III*	1965 - 1995	The Navy Exchange (NEX) Service Station (Building 925) consisted of an auto service garage and an office. The station operated for 30 years. In July 1990 a 1,000-gal fuel oil tank and a 275-gal waste oil tank were removed from the northwest corner of the site. In November 1995, the station ceased dispensing gasoline and the USTs were emptied. The three inactive, empty single-walled 10,000-gal steel gasoline USTs remained onsite until the July 1996 excavation (EA, 2000). EPA approved NFA in 2000 (EPA, 2000).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF at this site.	No Further PFAS Evaluation
M-33	Bldg. 59 Assembly Building Paint Area	SWMU	Zone III*	1930s - 1967	The Manufacturing, Assembly Shop, and Lab Building (Building 59) was constructed in 1918. In the 1930s and 1940s, the Naval Aircraft factory located at former Navy Shipyard Philadelphia reportedly conducted painting operations involving radio luminescent material. The gauges and dials were painted in the loft of the Assembly Building (Building 59). Small quantities of hazardous materials are stored in the northeast corner of the building. Solvents, oils, pesticides, acids, bases, and hydrazine were the materials stored at this location on pallets, in lockers or on shelves (Navy, 1994). Cleanup and disposal of this material was performed in 1967 (Envirodyne, 1983). Fuel Farm adjacent to Building 59 contained No.2 Diesel Oil, new shale oil, and old shale oil. Transformer storage adjacent to Building 59 with transformer oil (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in their operations. The years of operations at Building 59 were prior to widespread AFFF usage, making potential PFAS use/release unlikely.	No Further PFAS Evaluation
M-36 & T-4	M-36 - Bldg. 96 Former Waste Oil Storage Tank Area T-4 - Bldg. 96 Waste Oil Tank	SWMU	Zone III*	Unknown - 1991	Bldg. 96 Former Waste Oil Storage Tank Area located on the north side of the building in the central portion of the facility, facing SSW. Photo documents soil staining and absorbent. There was also staining along the wall of the building (1991 photos) (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use of AFFF at this site.	No Further PFAS Evaluation
0-10	Bldg. 601 Testing Area Oil/Water Separator	SWMU	Zone III*	1987 - Unknown	Machinery Test Facility Testing Area Oil/Water Separator (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use of AFFF at this site.	No Further PFAS Evaluation
W-1	Bldg. 535 Washrack	SWMU	Zone III*	Operational dates could not be found.	Vehicle Holding Shed Washrack. Wastes included oily wash water containing detergents and petroleum hydrocarbons (EA, 1999b).	Dates of construction, operation and demolition could not be determined. Area closed under RCRA, no further action in RCRA WP (EA, 1999b). No record of use of AFFF at the site. If use of washracks occurred	No Further PFAS Evaluation
W-2	Bldg. 539 Washrack	SWMU	Zone III*	Operational dates could not be found.	Marine Reserves Vehicle Maintenance Washrack. Wastes included oily wash water containing detergents and petroleum hydrocarbons (EA, 1999b).	Dates of construction, operation and demolition could not be determined. Area closed under RCRA, no further action in RCRA WP (EA, 1999b). No record of use of AFFF at this site. If use of washracks occurred	No Further PFAS Evaluation
W-3	Bldg. 96 Wash Area	SWMU	Zone III*	Operational dates could not be found.	Bldg. 96 Wash Area. Wastes included oily wash water containing detergents and petroleum hydrocarbons (EA, 1999b).	Dates of construction, operation and demolition could not be determined. Area closed under RCRA, no further action in RCRA WP (EA, 1999b). No record of use of AFFF at the site. If use of washracks occurred	No Further PFAS Evaluation
AOC-L	Bldg. 96 Spare Waste Tank	AOC	Zone III*	Unknown - 1995	Bldg. 96 Spare Waste Tank. NFA. (EA, 1999b).	No historical documentation on use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
PNB-3	Gasoline storage tanks	AOC	Zone III*	Structures present in 1959 aerial of area; area demolished 2011-2016	Gasoline storage tanks. Materials handled included petroleum product. NFA Decision Document was signed in August 1998 (Navy, 1998a).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-28	Pit-Building 59	AOC	Zone III*	1930s - 1967	Pit Area Building 59. NFA Decision Document was signed in August 1998 (Navy, 1998a). Material handled at this site was petroleum product (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-8	Gasoline tanks	AOC	Zone IV*	Unknown - 1985 (Based on aerial review)	Gasoline tanks. NFA Decision Document was signed in August 1998 (Navy, 1998a).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-14	Oil storage tank No. 871	AOC	Zone IV*	Prior to 1983; structures removed 2017-2018	Oil storage tank No. 871 - Tank Farm 871 (fuel oil) for catapult power plant is listed in 1983 Initial Assessment Study (Envirodyne, 1983). Three 10,000-gallon tanks. Building 871 contained 3 UST tanks No.N28-001, No.N28-002, and No.N28-003 (Kaselaan & D'Angelo Associates, 1991). Listed as "to be removed" in 1991 report (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation

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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
PNB-17	Concrete underground storage tank No. 856	AOC	Zone IV*	Unknown (no dates found)	Concrete underground storage tank No. 856 - Building 856 contained 2 UST tanks No.P24-001 and No.P24-002 (Kaselaan & D'Angelo Associates, 1991). Listed as "to be removed" in 1991 report. 1999 BRAC Cleanup Plan listed aviation fuel as stored material (EA, 1999b). According to Navy personnel, tanks were abandoned prior to AFFF use at base.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-18	Concrete underground storage tank No. 870	AOC	Zone IV*	Unknown	Concrete underground storage tank No. 870. 1999 BRAC Cleanup Plan listed aviation fuel as stored material.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-19	Gasoline tank farm	AOC	Zone IV*	Unknown (no dates found)	Tank Farm 854 Engine Test Laboratory: Gasoline 14 tanks (abandoned). NFA Decision Document was signed in August 1998 (Navy, 1998a). 1999 BRAC Cleanup Plan listed aviation fuel as stored material (EA, 1999b). According to Navy personnel, tanks were abandoned prior to AFFF use at base.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-22	Concrete pads	AOC	Zone IV*	Unknown (could not determine)	Concrete pads with petroleum product. NFA Decision Document was signed in August 1998 (Navy, 1998a). No record of use or storage of AFFF. Based on document and aerial photo review could not determine dates of use; site could not be observed in 1959 and 1962 aerials.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-23	Drum storage area	AOC	Zone IV*	Unknown (could not determine)	Drum storage area. NFA Decision Document was signed in August 1998 (Navy, 1998a). Based on site document and aerial photo review, could not determine dates of use.	No historical documentation of use or storage of AFFF, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
PNB-25	Gasoline storage tank No. 857	AOC	Zone IV*	Unknown (could not determine)	Gasoline storage tank No. 857. NFA Decision Document was signed in August 1998 (Navy, 1998a). Based on site document and aerial photo review, could not determine dates of use.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNB-26	Aircraft parking area	AOC	Zone IV*	1926-1963 (Based on airfield operating period)	Aircraft parking area used during airfield operations (1926 -1963). Petroleum product was listed as a material handled at this site (EA, 1999b). Based on site document and aerial photo review, could not determine exact dates of use.	Years of operation (1926-1963) are prior to widespread AFFF usage (i.e., after late 1960s).	No Further PFAS Evaluation
C-3	Bldg. 543 (C)	SWMU	Zone V*	1939 - 1996	Bldg. 543 (Pipe & Copper Shop) contained paint and hydraulic oil in one hazardous waste accumulation storage shed, one hazardous material accumulation storage shed, and one aerosol can accumulation area (Navy, 1994). Listed as NFA in EBS (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
C-10	Bldg. 57 (C)	SWMU	Zone V*	Unknown - 1996	Bldg. 57 (Structural, Welding and Forging Shop) waste paint (Navy, 1994). Site was to undergo limited sampling and analysis to screen for possible past releases (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
C-13	Bldg. 25 (B)	SWMU	Zone V*	1975 - Unknown	Materials handled at this site included waste paint and paint cans (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
C-14	Bldg. 3	SWMU	Zone V*	Unknown - 1996	Administrative and storage area with suspected waste or contaminants of aerosol cans and paint cans (Navy, 1994). Listed as NFA in EBS (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
C-46	Bldg. 635	SWMU	Zone V*	1985 - 1996	Dry Dock #3 service building for waste oil. EBS noted area was to undergo limited sampling and analysis to screen for possible past releases (Navy, 1994).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
C-47	Bldg. 22 (A)	SWMU	Zone V*	1972 - 1976	Central Tools/Substation (06 Shop) Navee 42 (cleaner) and waste oil (Navy, 1994). Listed as NFA in EBS (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
C-48	Bldg. 22 (B)	SWMU	Zone V*	1970 - 1976	Central Tools/Substation (06 Shop) waste oil (Navy, 1994). Listed as NFA in EBS (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation

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Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
C-74	Dry Dock #2	SWMU	Zone V*	1940s - 2000	The EBS identified suspected waste and contaminants as paints, solvents, and petroleum. Interim corrective actions were to be undertaken to prevent environmental degradation or contaminant migration (Navy, 1994). Surficial cleaning completed; no further action (RCRA) (EA, 1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, this AFFF was normally taken off of ships while in dry dock for equipment maintenance/servicing. No documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Dry Dock #2 it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-76	Dry Dock #4	SWMU	Zone V*	1940s - 1996	The area around Dry Dock # 4 was used to temporarily store waste materials resulting from ship maintenance activities. The unit operated since the early 1940's. Wastes managed by the unit included paints, solvents, and petroleum-based products; scrap metal, wood plastics; and industrial wastes such as insulation, welding rods, packaging, and blasting debris. The base of the unit at the laydown area adjacent to the Dry Docks consisted of a twelve (12) inch layer of concrete overlain by four (4) inches of pavement; in other areas, the base consisted of six to eight inches of pavement. The RFA states that the unit has a history of spills. Interim corrective measures to address physical/chemical contamination, were proposed for the visually stained surface areas at C-76. No other remediation was recommended (Navy, 1995). Surficial cleaning completed; no further action (RCRA) (EA, 1999b).	AFFF was reportedly handled at this site. Based on interviews with site personnel, this AFFF was normally taken off of ships while in dry dock for servicing. No documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Dry Dock #4, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
C-77	Dry Dock #5	SWMU	Zone V*	1940s - 1996	The area around Dry Dock #5 was used to temporarily store waste materials resulting from ship maintenance activities. The unit operated since the early 1940s. Wastes managed by the unit included paints, solvents, and petroleum-based products; scrap metal, wood, and plastics; and industrial wastes such as insulation, welding rods, packaging; and blasting debris. The base of the unit at the laydown areas adjacent to the Dry Dock consisted of 6-8 inches of pavement. Interim corrective measure which included physical/chemical decontamination were proposed for the visually stained surfaces at C-77. No other remediation was recommended (Navy, 1995).	AFFF was reportedly handled at this site. Based on interviews with site personnel, this AFFF was normally taken off of ships while in dry dock for servicing. No documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Dry Dock #5, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
D-2	Flammable Trash Dumpsters	SWMU	Zone V*	Unknown - 1998	Flammable Trash Dumpsters located across various zones at PNSY. EBS lists suspected waste or contaminants as scrap wood, sawdust, and scrap tires. Listed as NFA (Navy, 1994).	No evidence or historical record of AFFF-containing fire suppression system.	No Further PFAS Evaluation
M-19	Dry Docks #1 through #5 Sumps	SWMU	Zone V*	1900s - 1996	M-19 are the sumps for waste water from industrial operations at Dry Docks #1 through #5. Wastes handled included wastewater with paint chips, fiberglass, wood chips, and rubber. The sumps were subject to NPDES requirements and corrective actions were based on NPDES regulatory requirements (Navy, 1994). These sumps now service the dry docks for leased facilities. EPA approved NFA in 2000 (EPA, 2000).	AFFF was reportedly handled at the dry docks. Based on interviews with site personnel, this AFFF was most likely taken off of ships while in the dry docks for servicing. However there is no documentation that spills or releases of AFFF occurred. If a release did occur from the storage of AFFF containers at Dry Docks #1 - #5, it would have been washed into the Delaware River. The Delaware River is not being recommended at this time for investigation as part of this PA.	No Further PFAS Evaluation
M-23	Bldg. 646 Shredder	SWMU	Zone V*	1990 - 1994	M-23 was the Building 646 Shredder which contained paint waste and scrap metal. RFA sampling. Two hazardous waste accumulation storage sheds. PCB-contaminated electrical substation. (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
M-27	Bldg. 880 Paint Room	SWMU	Zone V*	mid-1980s - 1988	Bldg. 880 Paint Room. Yellow chrome-based paint waste. NFA. (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
M-28	Bldg. 880 Outdoor Paint Area	SWMU	Zone V*	1988 - 1995	Bldg. 880 Outdoor Paint Area. Yellow chrome-based paint waste. One hazardous waste accumulation storage shed and one hazardous waste accumulation site. RCRA Facility Investigation or expanded study was to be conducted (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation

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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
M-32/M-18	Utility Trenches Fuel Oil Contamination Area	SWMU	Zone V*	1946 - 1988	M-18/M-32 consisted of a leaking underground fuel line and surrounding concrete trench that accumulated waste fuel from the fuel tank farm and the shipyard. During redevelopment of the area, fuel oil was discovered in the bottom of the trench and cleanup of the area was completed in 1999 to make the property suitable for reuse. A closeout report was issue by the Navy in 2000. NFA was required (EPA, 2000).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
0-1	Navy Fuel Farm Oil/Water Separator #1	SWMU	Zone V*	Unknown	Navy Fuel Farm Oil/Water Separator #1, Petroleum and wastewater (EA, 1999b). Based on site document and aerial photo review, could not determine dates of use.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
0-2	Navy Fuel Farm Oil/Water Separator #2	SWMU	Zone V*	Unknown	Navy Fuel Farm Oil/Water Separator #2, Petroleum and wastewater (EA, 1999b). Based on site document and aerial photo review, could not determine dates of use.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
X-X	Kau Park Drum Staging Area	SWMU	Zone V*	Unknown	Kau Park Drum Accumulation Area. The SWMU was identified in 1994. The unit consisted of satellite container storage area located adjacent to SWMU M-37. It was used as a 72-hour staging area for containerized hazardous materials and wastes removed from ships stationed at Dry Dock #5. The storage area was constructed with a diked secondary-containment pad and roof. No evidence of release. NFA was recommended (Navy, 1995). Based on site document and aerial photo review, could not determine dates of use.	No historical records of AFFF use or storage, or reported leaks or spills of the stored material, were found.	No Further PFAS Evaluation
PNSY-3	Bldg. 571 Waste accumulation area	AOC	Zone V*	1935 - Unknown	Waste accumulation area at Forge & Heat Treatment Shop. 1999 BRAC Cleanup Plan listed paint as a material handled at this site (EA, 1999b).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
PNSY-7	Building 18 Machine Shop	AOC	Zone V*	1918 - Unknown	Building 18 was built in 1908. The machine shop (Shop 31) had two (2) aboveground tanks storing No. 2 fuel oil for the boilers inside Building 18. One tank had a capacity of 10,000 gallons, the other had a 1,000 gallon capacity. There were also two (2) additional aboveground storage tanks. One contained motor oil and had a 1,000 gallon capacity, the other contained used lubricating oil from overhauled pumps and had a 1,000 gallon capacity (EA, 1998).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNSY-10	Wharves	AOC	Zone V*	Unknown	Evidence of fuel spills were observed at Wharves G, H, I, J, K from ship off-loading operations. The site was investigated under BRAC Phase II and underwent a surficial cleaning before being closed out (EA, 1998). Based on site document and aerial photo review, could not determine dates of use.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNSY-11	Building 880	AOC	Zone V*	1966 - Unknown	Bldg. 880 (Paint and Blasting Shop). Sandblasted and painted sheet metal. Safety storage shed stored 55-gallon containers of paint and thinners. Evidence of petroleum/oil stain east of building (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF and no antifouling paint was used in their operations. No record of use or storage of AFFF.	No Further PFAS Evaluation
PNSY-21	Building 57	AOC	Zone V*	Pre-1920s - 1992	PNSY-21 included a 2,400-gal quench tank (formerly oil-filled) housed in the north end of Building 57 which was built in 1919. The tank was one of two tanks (one oil-filled and one waterfilled) used to cool heat-treated metals. Use of the tank reportedly pre-dated the 1920s. The tank was in operation until 1992, when it was drained and taken out of service. It was suspected that the unit had been leaking for many years as oil was frequently added to maintain specified levels and oil was reportedly identified in the underground vault that housed the unit. As part of the tank closure, the water in the quench tank was sampled, its contents disposed and the tank removed. Backfilling of the area and replacement of the concrete flooring were also completed. No further action was required (EA, 1998).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
C-7	Bldg. 754	SWMU	Zone V*	1945 - 2000	The 1999 BRAC Cleanup Plan listed oil products, solvents, and waste oil as materials handled at this location (EA, 1999b).	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation
C-35, M-15	Wharf F Waste Accumulation Area	SWMU	Zone VII*	1975 - 1985	The 1999 BRAC Cleanup Plan listed ignitable and nonhazardous (epoxy, latex) paint wastes (EA, 1999b).	According to site personnel no antifouling paint was used in base operations.	No Further PFAS Evaluation
C-62	Bldg. 646	SWMU	Zone V*	1990 - 1996	SWMU C-62 - accumulation area adjacent to Building 646 for paint cans (EA, 1998).	According to interviewed site personnel, no antifouling paint was used in base operations.	No Further PFAS Evaluation
PNSY-1	Antenna storage area east of Building 121	AOC	Zone VII*	Unknown	The 1999 BRAC Cleanup Plan listed petroleum as the material handled at this site (EA, 1999b). Based on site document and aerial photo review, could not determine dates of use.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation

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Table 4-2: Potential PFAS Areas Recommendations - No Further Evaluation

Potential PFAS Areas	Site Description	Site Class	Location/Zone	Years of Operation	Site Background	Basis for PFAS Evaluation Recommendation	Recommendation
PNSY-22	Power plant laydown area	AOC	Zone VII*	Unknown	Central Power Plant (Building 23) laydown area. The 1999 BRAC Cleanup Plan listed petroleum product as the material handled at this site (EA, 1999b). Based on site document and aerial photo review, could not determine dates of use.	According to site personnel, fuel and oil spills were not controlled with AFFF. No record of use or storage of AFFF.	No Further PFAS Evaluation

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FIGURES

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Legend

- Former Philadelphia Naval Complex
- PNYA Retained Areas
- Transferred Parcel/Area (Including IR Sites, SWMUs and AOCs)
- Transferred Parcel/Area (Residential)
- 1-Mile Radius Not Including South of FORMER NAVSTA/NSY Transferred Parcels/Areas
- Former Refinery Property/Properties

2,000 0 2,000 Feet

MAP OF POTENTIAL OFF-SITE PFAS SOURCES
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

NAVFAC Naval Facilities Engineering Systems Command

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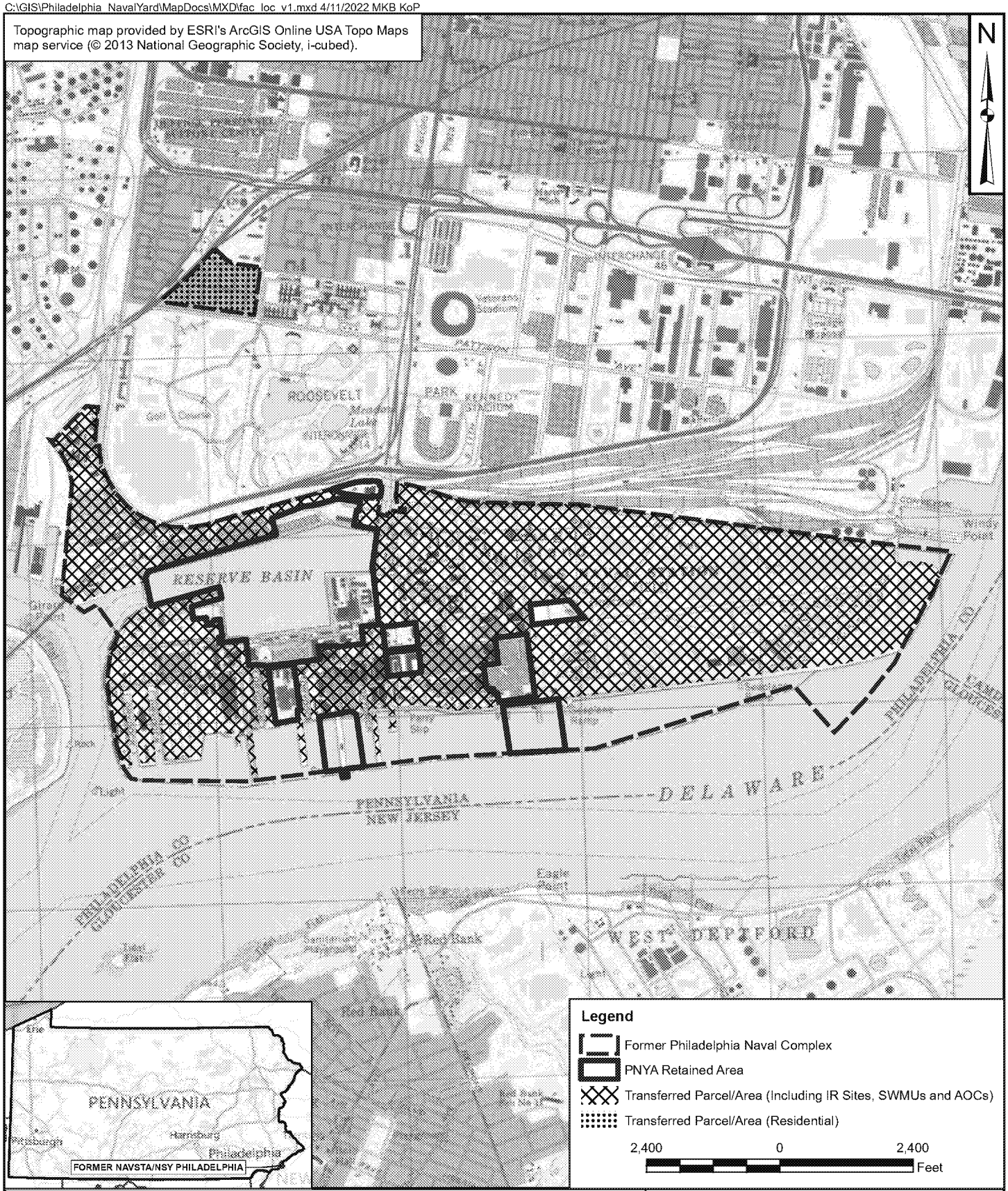

FACILITY LOCATION MAP
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

NAVFAC
Naval Facilities Engineering Systems Command

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MAP OF WELLS WITHIN 1-MILE OF TRANSFERRED PARCELS FORMER NAVSTA/NSY PHILADELPHIA PHILADELPHIA, PENNSYLVANIA

NAVFAC Naval Facilities Engineering Systems Command

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48 UNUSED WELLS
Fire Site 065
Fire Site 062
24 WELLS
27 WELLS
4 WELLS
22 WELLS
11 WELLS
1 WELL
8 WELLS
13 WELLS
NAVAL RESERVE BASIN
SCHUYLKILL RIVER
DELAWARE RIVER

Note 1 (Injection Well IDs):
483483
483484
483486
483487
483488
483489
483490
483491
483492
483493
483515
484151
484152
484153
484154
484155
484156
484158
484160
484161
484162
484163
484164
484292
484293
495283
495284

Legend

- Abandoned
- Destroyed
- Injection
- Monitoring
- Observation
- Test
- Unused
- Withdrawal
- Former Philadelphia Naval Complex
- PNYA Retained Areas
- 1-Mile Radius Not Including South of FORMER NAVSTA/NSY Transferred Parcels/Areas
- Transferred Parcel/Area (Including IR Sites, SWMUs and AOCs)
- Transferred Parcel/Area (Residential)
- Further PFAS Evaluation Recommended Area
- Former Refinery Property/Properties

* Abandoned wells are not labeled; the number of wells in each cluster is listed instead.
** Injection wells listed in Note 1.

Well data from the Pennsylvania Groundwater Information System, retrieved November 4, 2020.

1,600 0 1,600 Feet

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N

AOC-G
SWMU C-18
SWMU O-3
SWMU C-19
SWMU C-17
IR SITE 13
AOC-H
BUILDING 46
AOC-F
SWMU C-85

Legend
- Former Philadelphia Naval Complex
- PNYA Retained Areas
- Further PFAS Evaluation Recommended Area

800 0 800 Feet

FURTHER PFAS EVALUATION RECOMMENDED AREAS MAP
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

NAVFAC Naval Facilities Engineering Systems Command

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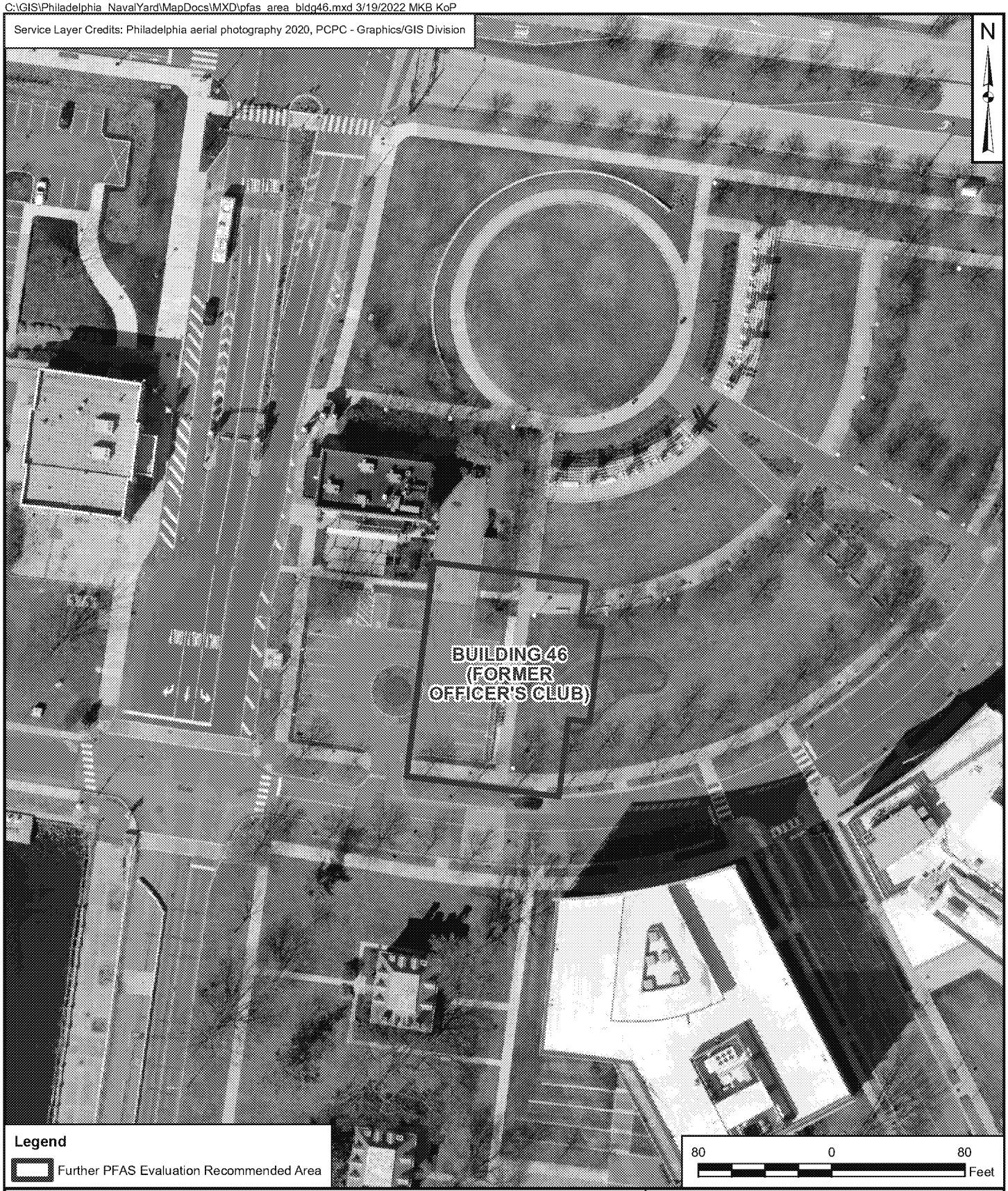

BUILDING 46 (FORMER OFFICER'S CLUB) SITE MAP
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

NAVFAC
Naval Facilities Engineering Systems Command

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AOC-F/BUILDING 41 (FORMER ELECTROPLATING SHOP) SITE MAP
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

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C-85/BUILDING 16 (ACCUMULATION AREA) SITE MAP
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

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IR SITE 13 (FORMER FIRE FIGHTING TRAINING UNIT)
AND ASSOCIATED AREAS SITE MAP
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

NAVFAC
Naval Facilities Engineering Systems Command

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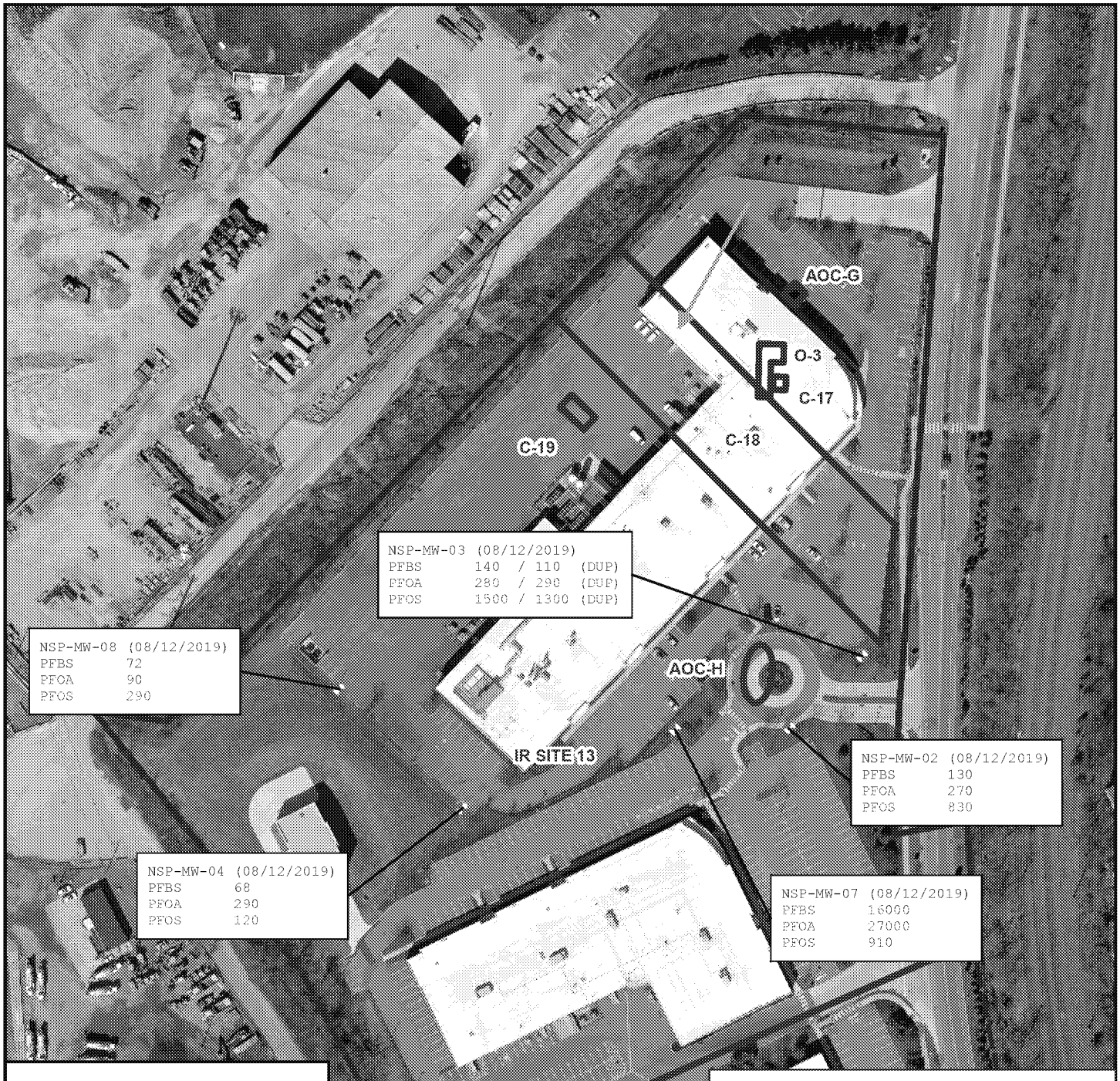

PFBS = perfluorobutanesulfonic acid.
PFOA = pentadecafluorooctanoic acid.
PFOS = perfluorooctanesulfonic acid.

All results shown in ng/L (nanograms per liter).
Results rounded to two significant figures (USEPA, 2019a).
Screening level exceedances are shown in red text.
Project Screening Levels:
PFBS: 600 ng/L.
PFOA: 40 ng/L.
PFOS: 40 ng/L.

Legend

- Monitoring Well
- Groundwater Flow Direction
- Further PFAS Evaluation Recommended Area
- Former Philadelphia Naval Complex

150 0 150 Feet

IR SITE 13 PFAS SAMPLING RESULTS (AUGUST 2019)
FORMER NAVSTA/NSY PHILADELPHIA
PHILADELPHIA, PENNSYLVANIA

NAVFAC Naval Facilities Engineering Systems Command

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